

**The *Tārāb* Saxophone**

The development of a comprehensive culturally informed approach  
to the performance on the saxophone  
of music derived from Arabic *maqāmāt*.

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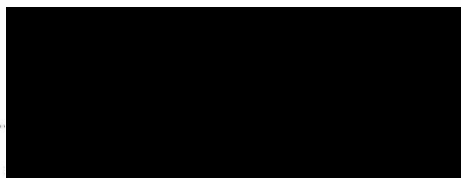
A thesis submitted in partial fulfilment of requirements for the degree of  
Master of Music (Performance).

**Statement of originality**

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Stuart Edward Vandegraaff

31 January 2018

## Abstract

This thesis details the synthesis of Arabic music performance practices with the idiolect of a non-Arab Australian saxophonist. The process is guided by principles inferred from *tārāb*, a phenomenon that encapsulates theoretical, technical and expressive information peculiar to the idiom.

A retraining method based on conceptualisation, replication, activation and incorporation is applied. A robust theoretical, contextual, aesthetic and kinaesthetic conception is developed by accumulation of performance skills on the Arabic *nāy* (flute). Aural skills are redefined and systematically enhanced to accurately perceive and produce microtones intrinsic to Arabic *maqāmāt* (modes). The study demonstrates how this information is transferred by analogy to the saxophone, requiring a detailed investigation of the instrument in the development of a 24-tone chromatic technical approach, including a hierarchy of preferential fingerings. A range of saxophones are tested to ensure transferability of solutions, and limitations are defined and discussed. Contextual technical and kinaesthetic retraining relevant to performance of *maqāmāt* on saxophone is achieved through a process of development of drills, including idiomatic trills, melisma and ornaments, repertoire extracts and extensive transcription.

This process enables a culturally informed and comprehensive performance approach to Arabic-*maqām* derived music, including traditional repertoire and contemporary intercultural performance practice. Skill sets derived from functional performance aspects of *tārāb* are used to enhance, direct and inform improvisation and composition practice, within and beyond the Arabic music context.

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## A note about transliteration, translations and referencing

Transliterations used in this document adhere to the ALA-LC standard. Many have been sourced from *The Beginner's Guide to the Nay* (Effat 2005).

Consistent with use in Sibelius music notation software, the symbol  $\flat\flat$  has been used to denote half-flat, for example  $B\flat\flat$  lies exactly half-way between B and B-flat.

The symbol  $\sharp\sharp$  has been used to denote half-sharp, for example  $C\sharp\sharp$  lies exactly half-way between C and C#.

The use of the terms “three-quarter sharp” and “three-quarter flat” have been avoided.

The Chicago 16<sup>th</sup> author-date referencing style has been used throughout.

## Glossary of Arabic Terms

*Darbūkah* (دربوكة): Arabic goblet drum, referred to as *tablah* by many musicians.

*Jins* (pl. *Ajnās*): lit. “sets” three-, four- or five-note “building blocks” of *maqāmāt*.

*Maqām* (pl. *maqāmāt*): exclusively heptatonic modes used as the basis for Arabic music including compositions and improvisations featuring a predetermined intervallic structure and set of modulation tendencies. A list of *maqāmāt* referred to in this study is included as [Appendix I](#).

*Mawwāl*: a predominantly vocal improvisation for exploration of *maqām* within a composition.

*Nāy* (ناي): the Arabic end-blown flute made from *Arundo donax* (giant Nile reed cane), featuring six finger holes and a thumb hole, blown with a bilabial embouchure.

*Nim*: slightly flat (microtonal).

*Qānūn* (قانون): lit. “master” or “law”, the Arabic lap zither.

*Riq* (رق): Arabic hand frame-drum, with numerous sets of *zils* (small cymbals) in the frame, precursor of the tambourine, Brazilian pandeiro and Italian tamborello.

*Saltanah*: an ecstatic or heightened emotional (transcendent) state achieved by the performer or in audience members during a *tarāb* performance.

*Sammi'a*: musically astute *tarāb* music enthusiasts and audience members.

*Takht*: traditional *tarāb* music ensemble, comprised of *riq*, *darabukka*, *ūd*, *nāy*, *qānūn*,

*Taqṣīm* (pl. *Taqāṣīm*): an improvised musical exploration of a *maqām* and its modulation tendencies.

*Tarāb*: music performed with the intention of inspiring an emotionally heightened state (ecstatic, rapturous or enchanted (Shannon 2003b)) in the performers and the audience, and the engagement with the production and culture of such music.

*Tik*: slightly sharp (microtonal).

*ūd* (عود): short-necked Arabic lute, precursor of the lute.

## Table of Contents

<b>1. Introduction.....</b>	<b>9</b>
1.1 Aims .....	11
1.2 Method .....	11
1.3 Significance .....	14
<b>2. Background and literature review .....</b>	<b>17</b>
2.1 Recorded examples.....	17
2.1.1 Arabic music on alto saxophone .....	18
2.1.2 Contemporary saxophonists deriving material from a <i>maqām</i> -based approach.....	20
2.1.3 Saxophonists performing in intercultural Arabic settings employing a 12-tone chromatic approach .....	20
2.1.4 <i>Maqām</i> -derived intercultural music not employing saxophone .....	21
2.1.5 Other Arabic music not incorporating saxophone.....	22
2.2 Literature review .....	23
2.2.1 Arabic music theory, technical, overview and background .....	23
2.2.2 <i>Tārāb</i> and Emotionality .....	24
2.2.3 Existing documented saxophone extended (quarter-tone) technique.....	25
2.2.4 Historical and socio-political context.....	26
<b>3. The Gap: omissions from technical literature and maximising opportunities ...</b>	<b>28</b>
3.1 Codified saxophone technique .....	28
3.2 Twelve-tone even temperament .....	28
3.3 Maximising opportunities.....	30
<b>4. Parameters.....</b>	<b>31</b>
4.1 Definition of Arabic music.....	31
4.2 Tuning standard and range .....	31
4.3 Instruments Tested .....	32
4.4 <i>Tārāb</i> : aspirational guidelines.....	34
4.5 <i>Maqām bayātī</i> .....	35
4.6 Prioritisation of keys .....	38
4.7 Tonal aesthetics .....	39
4.8 Language proficiency .....	39
<b>5. Interviews conducted as part of this research.....</b>	<b>41</b>
5.1 Basel Rajoub.....	41
5.2 Wisam Khassaf.....	42
<b>6. Relevance of the Arabic <i>nāy</i>.....</b>	<b>44</b>

<b>7. Aural Retraining .....</b>	<b>50</b>
<b>8. Execution: development of a set of first choice fingerings for production of microtones relevant to Arabic <i>maqāmāt</i>.....</b>	<b>52</b>
8.1 Presentation of the developed fingering conception.....	52
8.2 Discussion of the optimised fingering chart.....	55
8.2.1 G half-sharp.....	55
8.2.2 Discussion of technical execution and fingering options .....	58
<b>9. Activation.....</b>	<b>60</b>
9.1 Application to <i>maqām bayātī</i> .....	60
9.2 Unique fingering combinations .....	62
9.3 Drills and exercises .....	65
<b>10. Integration .....</b>	<b>68</b>
<b>11. Conclusion .....</b>	<b>70</b>
<b>APPENDIX I: <i>Maqāmāt</i> and note names referred to in this study .....</b>	<b>72</b>
<b>APPENDIX II: Selected recordings and discography.....</b>	<b>74</b>
<b>APPENDIX III: Arabic repertoire transcribed and performed during this study ...</b>	<b>79</b>
<b>APPENDIX IV: Relevant musical activities .....</b>	<b>82</b>
<b>APPENDIX V: Ethics approval documents.....</b>	<b>84</b>
<b>APPENDIX VI: Creative Output - Recital Program Critical Notes .....</b>	<b>85</b>
<b>APPENDIX VII: <i>Madad</i> Alto Saxophone Score .....</b>	<b>96</b>
<b>Referenced Text.....</b>	<b>101</b>
<b>Referenced Recordings .....</b>	<b>103</b>

## Table of Figures

Figure 1: Reduction of a segment of <i>Alf Layla wa Layla</i> .....	19
Figure 2: The rast tone row and derivative <i>maqāmāt</i> .....	36
Figure 3: <i>Maqām bayātī</i> and variants .....	37
Figure 4: Comparative instrument ranges .....	48
Figure 5: Side fingering reference nomenclature.....	53
Figure 6: 24-tone chromatic fingering chart optimised for performance of <i>maqāmāt</i> .....	54
Figure 7: <i>Jins bayātī</i> fingering conception for Eb saxophone (7 keys) .....	60
Figure 8: <i>Jins bayātī</i> fingering conception for Bb saxophone (7 keys) .....	61
Figure 9: Trills to and from relevant median 2nds.....	63
Figure 10: Drills, compositional examples and repertoire extracts.....	66

## Table of audio/video extracts

A.V. Table 1: <i>Alf Layla Wa Layla</i> extract.mp3.....	18
A.V. Table 2: Wisam Bayati Lick all 12 keys.mp4.....	67
A.V. Table 3: <i>Safe Haven</i> extract.....	67
A.V. Table 4: <i>Hezzi Ya Nawa3em</i> extract.mp3.....	67
A.V. Table 5: <i>Diggu l Mahabij</i> end.mp3.....	67



## 1. Introduction

This practice-based research project (Candy 2006) is a result of the multiple questions that arose from the interaction between my awareness of Arabic music as a complete and developed musical conception that fundamentally incorporates microtonality, and my potential to express musically communicative ideas derived from this system on my primary instrument, the saxophone. I wanted to discover the ways in which my engagement with *tārāb* could inform and direct the evolution of my music practice<sup>1</sup>.

In 2009 I was performing and studying in the Middle-East when I visited the ancient town of Acre (Akko), a town I have since learned is a significant centre for Arabic musicians. Around four in the afternoon, a teenager took a break from his job at the felafel shop and practiced his cane flute, a *kaval*. I was captivated by all of it: the communication of the music, the sound of the flute, the notes and inflections he produced in it, and the awareness of a vast cultural tradition from whence it sprang, of which I was almost completely ignorant. After drinking coffee, talking and playing for a couple of hours, I purchased from him a small cane flute, grimy and old. It was a Yassar Al-Shaffee *nāy ḥusaynī* (A), a very good Egyptian brand although a bit worse for wear.

I had been engaged in the production and performance of Arabic music for a number of years at that stage and was aware of fundamental differences between it and the majority of music I was involved with professionally as an Australian performer. I was aware of the significant absence of harmonic structures, predominance of heterophony, the hyper-melismatic melodic style and the use of tones outside the 12-tone chromatic system with which I was most familiar. I was also aware of a vast body of relevant theoretical and contextual knowledge that I lacked (or had a partly formed conception of), and that a form of emotionality involving both audiences and musicians was an inherent component of some of the performances I had experienced.

After a 3-year rest on top of my piano, I finally managed to get a sound out of the enigmatic length of *Arundo donax* (the same cane as my saxophone and clarinet reeds), which then led to the

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<sup>1</sup> My music practice here refers to performance, improvisation, composition, collaborative and pedagogy outcomes on a range of instruments including saxophones and *nāyāt*. I expect this investigation will also inform my musical approach to my instrumental doubles including clarinet and silver flute.

development of some performance skill on the *nāy*. A doorway of perception opened to my functional understanding the Arabic music system. Continuously for thousands of years this plant has been used in various guises by humans for music making, particularly in religious and spiritual practice (Southgate 1890, Effat 2002). I think there is a possibility that the *nāy* played a fundamental role in humankind's use of instruments to make music and that it may be the original provenance of heptatonic-based music, although this area requires further investigation.

On the first and second set of overtones, the *nay* naturally produces a double tetrachord (heptatonic) scale that intrinsically contains symmetrically placed median second intervals, exactly between major and minor second, also referred to as a  $\frac{3}{4}$  tone. The ability to accurately produce these tones is intrinsic to the conception, communication<sup>2</sup> and performance of Arabic music. After learning fundamentals of performance on the *nāy*, I discovered during practise on the saxophone a fingering (F half-sharp) that produced an accurate quarter-tone in an analogous physical position to the *nāy*.

Through further investigation I discovered several other accurate quarter-tones on the saxophone. I found no saxophone teachers nearby who were conversant with *maqāmāt*, though I frequently shared the professional company of expert practitioners of Arabic music on other instruments. I was also familiar with a substantial tradition of the use of saxophone in some of the most famous Arabic orchestras and ensembles, though I did not uncover details of the techniques they employed to achieve their musical results in any documented sources.

I was able to “lip” (inflect) a note more-or-less a quarter-tone up or down, but there were problems with accuracy and replication. Accurate lipping relies on hearing the quarter-tone accurately, and this relied on existing developed aural skills which I had yet to develop. Additionally, perfect consistency was hard to achieve through lipping in passages that repeated quarter-tones, particularly at velocity. On most recordings I had heard it didn't sound like the players were lipping. I felt I required a consistent approach based on mechanical solutions that could be codified and replicated. Overall, I formed a desire to understand how my saxophone technique and musical approach could be adapted

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<sup>2</sup> ‘Emotionality’ is an inadequate term to describe the detail and specificity of communication of musical ideas, especially in Arabic music. The demonstrated widespread use of pitch-based communication including in Asiatic, indigenous South American and European language suggests to me that limiting use of the observable tonal spectrum in music may also limit the detail and specificity of the musical communication.

for application to Arabic music and its derivative forms, to explore, test and codify the various options, and to quantify any limitations or restrictions.

## 1.1 Aims

My intention was to extend my tonal expressive idiolect for composition, improvisation and performance on the saxophone by incorporating theoretical, technical, emotional and aesthetic aspects including microtonality derived from Arabic music. I aimed to develop a consistent, comprehensive approach towards the expressive, culturally informed performance of *maqām*-derived music on saxophone. Within that context, this study was aimed at developing:

- key foundational and theoretical concepts;
- aural skills specific to the 24-tone (and beyond) melodic environment;
- a comprehensive approach to incorporation of specific technical skills; and
- an aesthetic approach specific to performance on the saxophone in this idiom.

By exploring various solutions and codifying my preferences, I aimed to develop a (personal) best-practice approach to performance of *maqāmāt* on saxophone. I wanted also to identify and quantify any limitations there were to my use of the saxophone as an expressive instrument in the performance of *maqām* derived music.

I aimed to activate this information beyond my own practice by positioning myself in professional environments involving Arabic music in traditional and intercultural musical settings including performances, recordings, compositions, pedagogical outcomes and creative collaborations.

## 1.2 Method

As an aerophone and central instrument in many traditional Arabic ensembles, including the *takht* (Touma 1996), the *nāy* was my choice as the ‘best-fit’ instrument around which to formulate my broader conception of Arabic music. As with all instruments, learning to play it is a lifelong

journey that began in earnest for me about 4 years ago. This was a foundational process that substantially informed this investigation.

I found another significantly helpful step was to achieve some language competency (speaking, reading and writing) in relevant languages including Arabic and Hebrew.

I designed and employed a four-stage process to progress my knowledge based on clearly discrete macroscopic levels of functional ability, namely:

- Conceptualisation: understanding the system, the context and the challenge;
- Replication: devising and compiling sets of possible solutions,
- Activation: testing the solutions identified in context, to develop a hierarchy of preferences; and
- Integration into creative practice, including performance, composition and improvisation.

Through my understanding of microtonality pertaining to performance of *maqāmāt* on the *nāy*, I developed an understanding of the requirement to produce certain tones, and their exact placement within the tonal spectrum and musical context. This concept was developed and reinforced through a detailed examination of relevant documented sources pertaining to Arabic music theory and performance outcomes.

I worked carefully with a tuner to develop my ability to hear their exact placement of the quarter-tones in the tonal spectrum and accept them as individually and contextually tonally expressive entities. Specific attention was paid to training myself to naturally hear, accept and replicate the interval of an evenly-tempered (Maalouf 2003) median second or three-quarter tone (as distinct from the interval of a quartertone, which is seldom used in Arabic music) both vocally and on my instrument. This aural retraining was significantly enhanced during professional activities including rehearsals, recordings and performances.

A thorough examination of documented extended saxophone techniques specific to the production of microtones was conducted. I consulted with expert practitioners. This information was synthesised with my personal investigation of the saxophone, and I uncovered a range of solutions for the accurate replication of the necessary quarter-tones. No documented saxophone-

specific methodologies pertaining to *maqāmāt* were discovered in my review of available literature.

The tuning and quality of all discovered quartertone fingering options was rigorously tested. Absent or unsatisfactory options were identified, and practical and theoretical solutions considered. I developed a concept of key priority based on observed phenomena including the nature of the standard set of *nāyāt* (7 flutes only), limitations of other instruments including *ūd*, tonalities observed in a substantial body of recorded material and in performance practice of traditional repertoire, and through conversation with teachers and other practitioners (detailed in [section 4.6](#)). I developed a series of technical exercises through which a best practice approach to producing the required tones was achieved, including a hierarchy of contextually suitable options where appropriate.

For me, technically unimpaired execution of the quarter-tones and particularly the transitions between some tones required specific kinaesthetic retraining. Many fingering combinations unique to the *maqām* context were identified. An approach to the development of exercises and drills for kinaesthetic and aural retraining was formulated and applied. A significant body of repertoire was transcribed and performed during the course of this study ([Appendix III](#)), from which repertoire extracts and other contextual examples were selected and studied in all relevant keys to ensure comprehensive coverage. Particular attention was paid to material originally recorded on saxophone.

As part of this study, I conducted interviews with Syrian saxophonist Basel Rajoub and Dubai-based Iraqi saxophonist and *nāy* performer, Wisam Khassaf. Information derived from these interviews informed critical areas of my conception relating to technique and aesthetic approach.

I integrated theoretical, technical and aesthetic elements into my performance idiolect through a series of measures including specific practise of *taqāsīm*, positioning myself in professional situations involving the performance of standard repertoire (including *taqāsīm*) with peak performers, through my creative practice including composition, collaboration and performance of original *maqām*-derived repertoire, and through recording and review of practise, performances and in professional studios.

A final qualifier is that this study is intended to be purely quantitative rather than qualitative. Although my aim is to develop my tonal expressive idiolect by incorporation of the elements mentioned, assessment of expressiveness by definition requires a qualitative assessment. Rather than comment on the relative aesthetic, artistic or other value of my outputs including performances, recordings and compositions, I have maintained here a focus on the identification and incorporation of clearly quantifiable solutions such as accuracy of intonation or enablement of execution.

### **1.3 Significance**

There is an existing body of repertoire and supporting technical development resources pertaining to microtonality available for saxophone, particularly within the contemporary classical extended technique repertoire. It is the specific context of microtonality within Arabic music that attracted me towards developing my capabilities in this area. I found greater significance in the specific (technical, aural and aesthetic) development of microtonal capabilities required for the performance of Arabic repertoire and improvisation. The frequency of performance opportunities (see [Appendix IV](#)), the vastness of the relevant body of repertoire, the familiarity of the idiom with a sizeable body of professional and lay enthusiasts, the opportunities for feedback from audiences and tutors, and my personal affinity for the music all contributed to my preferential application of time, talent and energy to study and research contextual microtonality in Arabic music rather than microtonal contemporary (classical) saxophone repertoire.

My initial aim was to equip myself with the necessary skills to execute and replicate Arabic repertoire. My engagement with the local community, initially through the *Raqs Sharqi* (Middle-Eastern dance) community and later within the community of Arabic music professionals indicated a local shortage of wind instrumentalists, a willingness (with a level of cultural negotiation required) among musicians to exchange and share information, and an acceptance of my place within the community as a professional musician with the necessary foundational skills from which to develop performance skills specific to Arabic music.

This was significant personally for the expansion of my broader musical conception and skill set, and had cultural significance in that I, as an Australian of Celtic-Dutch extraction, frequently engaged in professional musical activity with musicians bearing exclusively Arabic heritage. Beyond the novelty of this situation, there is a broader statement of personal and political values on my part that was received and largely reciprocated. The symbol of a (conspicuously) non-Arab engaging visibly with Arabic music at professional level, aiming to perform with the “right feeling”, and later composing and collaborating in the production of original intercultural performance pieces, is subtle yet powerful, and is a message that has been enthusiastically received by professional contemporaries, audiences, critics, academics and programmers from a diversity of ethnic backgrounds.

The abilities I have developed in this area have also been warmly received within local, national and international communities of music makers. It has enabled numerous productive performances, collaborations, educational and other outcomes, and is a key impetus behind performance ensemble *Masha's Legacy*, of which I am co-founder.

My hope is that by developing and documenting my process, I can continue evolving as a musician, particularly in performance, composition and improvisation. I want to use the knowledge gained to experiment with the fundamentals of musical communication related to the use of quarter-tones. My instinct suggests that a deeper examination of the vast body of harmonic possibilities encoded within 24-tone chromaticism will yield significant results I and other musicians can incorporate in performance and composition.

I have observed a high level of interest in this work from a significant number of people including performers of music and other arts including dance. Many people are curious about Arabic music and its derivatives, particularly about the use of quarter-tones and the surrounding context. My accumulation of this specialist knowledge has pedagogical implications specifically for saxophonists and *nāy* players, and more broadly for those seeking to enhance their knowledge in the field of Arabic music and *maqāmāt*, including professional and amateur *Raqs Sharqi* (Middle-Eastern dance) practitioners.

Another outcome is that I have developed a set of skills that can and has informed and directed the output of composers and curators. Many of the skills and approaches can be applied or adapted through education and coaching for other instrumentalists, thereby enabling the production of *maqām*-derived music by musicians from a more conventional (non-Arabic) background.



## 2. Background and literature review

Most of my formative understanding in the area of Arabic music was gathered informally, often driven by the necessity of preparation for performances. I was challenged early in the process when I encountered repertoire incorporating microtonality. I had to replicate these tones but lacked the technique or developed aural skills to do so. I developed some solutions by creative problem solving during practice, and filled some information gaps through conversation in the company of expert practitioners I have been fortunate enough to share company with. However, small successes in practical terms led to larger questions of diligence and comprehensiveness: I became more aware of the vastness of what I didn't know. This led me to search more deeply, and the documented background pertaining to this study I discovered comprises of two sources: recorded examples and academic text-based sources (literature review).

### 2.1 Recorded examples

My first introduction to the existence saxophone in traditional Arabic or Arabic-influenced music was from recordings and this remains the most important primary source of pertinent information. While this study is not intended, nor does it purport to be a comprehensive representation of the genre, the relevant discovered recorded material discovered to date can be broadly categorised in five ways:

- Arabic musicians playing traditional Arabic music on saxophone;
- saxophonists deriving material from a maqam based approach;
- saxophonists performing in Arabic or intercultural settings employing a 12-tone chromatic approach;
- *maqām*-derived intercultural music not employing saxophone; and
- other Arabic music not incorporating saxophone.

The issue of what defines traditional practice here is inherently problematic as the saxophone has a very short history in the production of Arabic music compared with traditional instruments. Traditional in this context refers to folkloric music, ensembles and repertoire that forms a recognised core of well-known purely Arabic material, akin to the standard jazz repertoire. The

music is purely *maqām*-based, employs Arabic rhythmic structures, and any vocal is sung purely in Arabic.

### 2.1.1 Arabic music on alto saxophone

The alto saxophone has a presence in recorded Arabic music since at least the 1960's, particularly among recordings made in Egypt. Prominent among these are *Alf Layla wa Layla* (ألف ليلة و ليلة - 1001 Nights) composed by Baligh Hamdi and made famous by the iconic singer Umm Kulthûm (Hamdi 1969), and *Gana el Hawa* (جانا الهوى جانا) composed and performed by Abd'el Halim Hafez (Hafez 1969). An idiomatically superbly performed alto saxophone carries many of the main themes of these compositions and the former is significant in that it contains frequent melodic variation using the note G<sup>‡</sup>, as shown in Figure 1 (audio extract also included as A.V. Table 1).

[Alf Layla Wa Layla  
extract.mp3](#)

**A.V. Table 1**

Figure 1: Reduction of a segment of *Alf Layla wa Layla*

This saxophonist was Samir Srour (1933-2003). Mohammed °Abd al-Wahhab included Srour as a regular fixture in the prolific orchestra *al-Firqa al-Māsīya* (الفرقة الماسية – The Diamond Band) and the recordings made with this legendary ensemble are still played all over the world where Arabic music is listened to. Srour’s unique approach inspired generations of subsequent saxophonists. Among these is Syrian saxophonist and *nāy* player Wisam Khassaf, who I interviewed as part of this research project. Other notable players include Nabil Al-Sayed, Sinan Aydin, Ahmed al-Saidi and Mohamed Maksoud. These players intentionally have their approach firmly rooted in the Arabic tradition. While their approach may incorporate elements of non-Arabic sources, it is usually derived through the Arabic prism, eg European classical influence derived from performance of Fairuz’s material.

Alto saxophone is featured prominently in the Egyptian *Baladi* style, particularly in recordings of the *Layali al Sharq* (nights of dance) Egyptian Baladi Orchestra (Trad. 1990). The saxophonist is credited as Mostafa Sax<sup>3</sup>.

### **2.1.2 Contemporary saxophonists deriving material from a *maqām*-based approach**

This group of players can be more challenging to identify as they may come from a non-Arabic background or incorporate non-Arabic technique and tradition in their playing. Some self-identify as having derived some of their performance practice techniques from Arabic sources. Séan Mac Erlaine describes Hayden Chisholm as one such non-Arabic player to have incorporated *maqām*-based microtonality in his jazz performance and composition practice (Mac Erlaine 2009). Other players such as Gilad Atzmon, Idris Rahman and Basel Rajoub have origins close to or within the Middle-East and this cultural exposure appears to have flavoured the approach demonstrated in their recordings. Another significant player in this category is Lebanese-born saxophonist, composer and bandleader Toufic Farroukh.

### **2.1.3 Saxophonists performing in intercultural Arabic settings employing a 12-tone chromatic approach**

This is a group of players in which Arabic musicians may be the bandleader or co-collaborator, but in which the saxophonists are not of Arabic extraction and appear not to employ any microtonality, techniques or principles derived from the Arabic approach. Examples include Sonny Fortune's contributions as a sideman in several of Rabih Abou-Khalil's recordings (Abou-Khalil 1989), Wolfgang Puschnig in his collaborations with Dhafer Youssef (Puschnig 2005), Charlie Mariano (Mariano 1998), and Jan Garbarek and John Surman in their collaborations with Anouar Brahem (Surman/Brahem 1998, Garbarek/Brahem/Hussain 1994). American jazz saxophonist Johnny Griffin made a recording with Ahmed Abdel Malik in 1958, released as *Sahara Jazz* with an all Arabic ensemble (Kelley 2012, Malik 1958). In

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<sup>3</sup> My investigation has revealed very little about this highly skilled but enigmatic player, save that he passed away more than 15 years ago, and his true identity remains unrevealed.

similar style, another significant set of recordings were those of Salah Ragab and the Cairo Jazz Band, recorded in Heliopolis Egypt between 1968-1973 (Ragab 1968). These recordings feature an American style big band (5 saxophones, 4 trumpets, 4 trombones plus rhythm section) as well as Arabic instruments including *req'*, *darabukka*, *daholla*, *oud* and *nāy*. While the solos on these Arabic instruments are purely Arabic *maqām* based (incorporating microtonality), the non-Arab instruments employ a 12-tone chromatic approach. As with the other saxophone players in this category, there is no evidence in the recorded material that any of these players adopted a *maqām*-based microtonal approach in these collaborations, nor has any written or anecdotal evidence been uncovered to support a *maqām*-enriched approach.

#### **2.1.4 *Maqām*-derived intercultural music not employing saxophone**

The majority of composers and performers in this category have direct cultural ties with the Middle-East. The music and motivation of the contributors is frequently politically charged. Many ensembles tap into a common musical language that appears to be emerging among elite level performers with capabilities, awareness and deep learning that span many different cultural and ethnic conceptions. For example, many musicians based around the Mediterranean may have fully or partially formed performance conception of Turkish *makam*, *Rroma* (Gypsy) music, European classical, jazz, Greek, Persian, Arabic *maqām*, heavy metal and North Indian music techniques. While many of these traditions appear disparate, big-thinking musicians have the ability to find a vast common ground from which to produce sophisticated and culturally informed musical and artistic statements.

Bustan Abraham is a fine example, incorporating a political statement of Israeli Jewish-Palestinian unity and many of the musical approaches noted above, including guest appearances from some of the most highly regarded contemporary North Indian musicians including Zakir Hussain and Hariprasad Chaurasia (Abraham 1998).

Dhafer Youssef is another excellent example of a musician-composer who has consistently surrounded himself with broad thinking adept musicians from a variety of cultural backgrounds. While his background is Tunisian, he has collaborated with numerous European

jazz players, Indian musicians and Turkish musicians, notably Turkish clarinettist Hüsni Şenlendirici (Youssef 2013). Another contemporary composer-performer in this line is Australian-Egyptian *oud* exponent Joseph Tawadros. The study of both musicians' work has limited application to this study as they most frequently employ *maqāmāt* that do not contain microtones, for example *nahāwand*, *kūrd*, *hijāz*, *°ajam* and *nikrīz*, which do not require special reconceptualisation of performance technique or aural retraining for musicians versed in the 12-tone chromatic concept.

Other groups, composers and performers in this category include the fusion work of Palestinian singer Amal Murkus (Murkus 2007); bassist/composer Renaud Garcia-Fons; Lebanese producer Ghazi Abd'el Baki; Ziad Rahbani; French-Lebanese trumpeter Ibrahim Maalouf; Thierry "Titi" Robin; and *'ūd* virtuoso Anouar Brahem.

### **2.1.5 Other Arabic music not incorporating saxophone**

This is a significant category for this study as it represents the majority of music engaged with by the community of those engaged with Arabic music, either as performers or audiences. Much of the repertoire I have been professionally required to perform belongs in this category that includes a vast repertoire of music familiar to Arabic performers and audiences. Among this category is repertoire from singers Umm Kulthūm, Warda al-Jazairia, Abd'el Halim Hafez, Fairuz (Rahbani brothers), composers Mohammed °Abd al-Wahhab, Farid el-Atrache, traditional material, Andalusian *muwashahat* and the extensive Sufi tradition of music making that is deeply linked to the *nāy °ašīrān* (Touma 1996).

Included in this category is the repertoire of modern instrumentalists and composers recognised as maintaining and renewing the tradition of Arabic music including performer-academics Simon Shaheen, A. J. Racy and Charbel Rouhana.

Included also in this group are the recordings of significant *nāy* players recommended to me by professional colleagues. The study, transcription and analysis of their playing has formed a cornerstone of my conceptualisation of Arabic music on *nāy*, later adapted to saxophone: *maqām*, ornamentation, extemporisation, *taqāsīm* and melody. These players include Mahmoud

Effat, Reda Bedair, Bassam Saba, Ibrahim Kawala and Turkish multi-instrumentalist, Omar Faruk Tekbilek.

## **2.2 Literature review**

The written sources identified as being relevant to this study include books, websites, dissertations and journal articles which have been categorised as follows:

- Arabic music theory, technical, overview;
- *tārāb* and emotionality;
- saxophone microtonal technique; and
- historical and socio-political context.

### **2.2.1 Arabic music theory, technical, overview and background**

Arabic music theoretical principles have historically been transmitted predominantly aurally. Few English sources (translated or otherwise) have been discovered that rigorously cover the relevant area, despite the vast field of human knowledge it represents. Touma's frequently referenced text (Touma 1996) covers many aspects of the tradition, however the author depicts a certain focus of attention towards "pure" Arabic music. The information contained appears largely ethnographic rather than performance-based or related. It serves as a broad and informative introduction to a large body of information.

The 1932 Conference of Arab music in Cairo was a contentious meeting with significant outcomes including a walk-out by the Persian and Turkish delegations (Thomas 2006), and a determination to standardise and evenly temper the Arabic music system by effectively evenly dividing the octave into 24 tones (Maalouf 2003, Ghrab 2005, Thomas 2006). This was a pragmatic judgement as much as anything, but has determined the evolution of the music since then. This even-temperament has formed the basis for the development of my microtonal approach to saxophone.

There are significant discrepancies between theory and practice as discussed in depth in several noteworthy works (Marcus 1993, Ederer 2011). An example of this I have observed in my own performance experience with some Arabic musicians is the disparity between the placement of the half-flat second in *bayātī* and *sābā*: in *sābā* the interval between the tonic and the second tone is often performed as a slightly diminished median second (in home key the E half-flat is slightly flatter in *sābā*). Consideration of this information has informed the development of my performance approach to *maqāmāt* (as distinct from the theoretical even-tempered approach). It has also raised my awareness of such cultural factors that effect performance outcomes when working with Arabic musicians from different countries or musical traditions.

A text that has been invaluable to this process in its contextual introduction to Arabic music is *The Beginner's Guide To the Nay* (Effat 2005). Translated into English in 2005 by performer and academic Jon Friesen, this text introduces nay technique, *maqāmāt*, and performance examples (drills, exercises and transcriptions) and is the sole foundational performer's method on Arabic music discovered in this literature review. I also frequently referred to the *Maqām World* website (Farraj 2007) for theoretical, practical and contextual information.

Beyond simply replicating the tones, ornaments and melodies in Arabic music, *taqāsīm* is the ultimate expression of *maqām*. Modal modulation is the key to successful and connecting musical communication. In conjunction with personal investigation, transcription and tuition, Scott's clearly presented analysis of aurally transmitted modulation tendencies for composition and *taqāsīm* (Scott 1992) has aided the development of my *taqāsīm* approach.

### **2.2.2 Tārāb and Emotionality**

A fundamental concept of Arabic music is emotionality or *tārāb*, often described as enchantment or ecstasy (Racy 2003, Shannon, 2003 #15). Any detailed foray into the performance of Arabic music would be incomplete without substantial reference to *tārāb* (Lueg 2013).



While *tārāb* refers more to an aesthetic/philosophical approach, it is partnered with the concept of *saltanah*, a state achieved by performer(s) and/or audience in which there is a loss of self-consciousness or self-awareness within the performance, during which a performer is able to transmit his or her feeling in a purely emotionally connected and technically unimpaired way, and during which audience members can experience an ecstatic or blissful connection with the musical communication.

This specific focus on emotionality and human response to music could significantly benefit mainstream (non-Arabic) performance and derivative research fields. This area is fundamental to this project as one of the stated aims is to develop my expressive musical idiolect by incorporating the emotional and interpretive aspects of *maqām* and *taqāsīm* (Racy 2003).

### **2.2.3 Existing documented saxophone extended (quarter-tone) technique**

I discovered some accurate quarter-tone fingerings on the saxophone through practice and investigation of the instrument. These discoveries were verified and extended upon through discussion with other professional players and an examination of several published sources of information pertaining to extended saxophone technique, including *The Cambridge Companion to the Saxophone* (Ingham 1998) and *Un Saxophone Contemporain* (Michat and Venturi 2010). Some dissertations with a focus on development of microtonal facility on saxophone were identified including *Extended Techniques for Saxophone* (Murphy 2013) and *Microtonality as and expressive device* (Mac Erlaine 2009). The approaches and fingerings discussed either duplicated or supplemented results previously established. Moreover, none of these texts make specific mention of the median second interval fundamental to Arabic music. This can be inferred from quarter tone study, however I found I required a specific focus in aural and technical retraining to accurately pitch the  $\frac{3}{4}$  tone as distinct from the quarter tone and indeed the deeper subtleties of microtonality.

The note G<sup>‡</sup> is problematic and has no representation in literature discovered in this review. Additionally, no specific discussion regarding the adaptation for performance of *maqāmāt* or Arabic music on saxophone was identified within existing literature.

#### **2.2.4 Historical and socio-political context**

Numerous published works provide historical and contextual placement of this work. Touma (1996) provides a factual and rounded overview of the history of Arabic music from pre-Islamic times to the 20<sup>th</sup> century, including the segmentation of the *Al-Andalus* tradition from Syrian and Iraqi forms (Touma 1996). Shannon (2003) more closely examines traditional form *al-Muwashshahat* and *al-Qudud al-Halabiyya* (Shannon 2003a) and there are numerous other ethnographic and other texts that consider sub-genres and regional cornerstone forms and styles.

Significant musicians and composers from the mid-20<sup>th</sup> century continue to dominate the nostalgic music preference of audiences. Many of these individuals were major celebrities during significant periods of nation-building, particularly during the 1950's-60's, coinciding with the new proliferation of broadcast media. The music they presented still holds a deep sway with audiences, particularly in the diaspora, and this in turn heavily influences current performance tendencies of musicians. In particular, the impact of the Egyptian-based *tārāb* singer Umm Kulthūm, composer Mohammed °Abd al-Wahhab, Abd'el Halim Hafez, Farid al-Atrache, Fairuz and the Rahbani brothers in Lebanon (Raheb 1999), and constellations of other glittering stars continue to shape the firmament of Arabic music. Several texts help flesh out the musical and historical context of these significant individuals (Azzam 1990, Danielson 1996, Racy 1981) and provide context for the current status of Arabic musical activity. Egypt was the centre of production of Arabic musical output (broadcast, recording, movie and television production) from the 1950's until very recently and several notable works (El-Shawan 1980, Thomas 2006) discuss aspects of the Egyptian musical, cultural and social situation.

Jazz and hybrid music have been present In Arabic music since its first audio recordings: the compositions of Mohammed °Abd al-Wahhab, which form a major mainstay of Arabic

(Egyptian) music were a hybrid of Arabic *maqām* and European orchestral music. In the 1950's, as part of a US government propaganda exercise, the "Jazz Ambassador Tours", jazz bandleaders Dave Brubeck, Louis Armstrong, Duke Ellington and others were invited to the Middle-East to perform and collaborate with local musicians (Hofstee 2015). Jazz tenorist Johnny Griffin recorded and released *Jazz Sahara* in 1958 with Ahmed Abd'el Malik (Kelley 2012), although his performance approach remained purely 12-tone chromatic and rooted in the jazz tradition.

Noteworthy also was the musical output of Salah Ragab and the Cairo Jazz band, which was more significant for its early forays into Arabic/Jazz hybridity than the substance or quality of the music produced. The improvisations on traditional instruments such as *nāy* do provide at times an insight into the interpolation of *maqām* based microtonality in an otherwise 12-tone chromatic harmonic environment.

Race and religion play a significant part for a non-Arab conducting investigations in this sphere. It plays a significant role in the motivations of performers and groups including Amal Murkus, Rabih Abou-Khalil, the Joubran Brothers, Bustan Abraham and others, as Brinner (2009) and El-Ghadban (2001) discuss in context of the Israeli-Palestinian situation (Brinner and Oxford University 2009, El-Ghadban 2001).

In the current socio-political era, there has been a significant migration of artistic attention towards hallmarks of Arabic culture including music. Swedenburg (2004) discusses this in context of a post-9/11 world, referring to Arabic collaborations and musicians firmly in the eye of a mainstream English-speaking audience, in which the Arabic musical system has been subsumed by the "Western" approach, but seldom the other way around. Hadrick (2002) discusses the possibilities of redefinition of African music and the bridge-building possibilities of music that straddles jazz and Moroccan music (Hadrick 2002). Several other texts describe and discuss contemporary developments in Arabic music as it intersects with technological advancements: ancient traditions finding new forms of expression through contemporary artists (Adileh 2011, Rasmussen 1996).

### **3. The Gap: omissions from technical literature and maximising opportunities**

Analysis of background material including recordings and literature and consideration of the predominance of 12-tone chromaticism in mainstream Australian music practice and education, reveals to me the potential for academic investigation in three specific areas: in codified saxophone technique, in the potential for cultural and communicative limitations encoded within the predominance of 12-tone chromaticism in Australian music education, and in the potential for the forging of more potent intercultural musical symbols through engagement with Arabic music.

#### **3.1 Codified saxophone technique**

There is evidence of a substantial, rich tradition of the use of saxophone in Arabic music settings starting with the presence of saxophones in military bands in the Middle-East through military occupation by European nations (Touma 1996). It emerged as a solo instrument in the 1950's with Samir Srour as a prominent and widely recognised expert in *taqāsīm* and performance of *maqām* repertoire. Application to Arabic music scenarios necessarily involved individual adaptation of technique. Recorded examples demonstrate that Arabic saxophonists have found accurate solutions for production and technical facilitation of all tones and intervals, including the frequently occurring note G $\sharp$ . I needed to develop consistent, contextually appropriate solutions for the production of all quarter-tones, including G $\sharp$  as a matter of practical necessity. My review of the available literature revealed no codified sources of information specifically pertaining to the technical issues including microtonality related to performance of *maqāmāt* on saxophone.

#### **3.2 Twelve-tone even temperament**

In my experience of the mainstream Australian context, music learning and pedagogy is based predominantly around 12-tone even-temperament. There is a professional necessity for musicians, particularly wind instrumentalists, to refine their performance skills around the 12 points on the tonal spectrum represented by 12-tone chromaticism. An unfortunate consequence I have observed

is that many Australian-trained musicians bear a diminished set of aural skills and performance capabilities related to alternative tuning systems. This has the potential to consequentially limit the pool of capabilities of Australian trained composers, performers<sup>4</sup> and analysts. In the worst incarnation, this may be perceived as an ingrained cultural bias.

Many indigenous and ethnic genres and disciplines of music are increasingly represented within formal Australian music learning organisations: as an example, Sydney Conservatorium has excellent representation of Indonesian, Japanese and Chinese forms, aside from the predominance of European forms and their derivatives. Results from the 2016 Australian Census reveal that in the Greater Sydney Region, Arabic is the second most commonly spoken language (besides English) in homes (4.0%, behind Mandarin at 4.7%), and that Lebanon ranks fifth as the most common place of birth for both mother (2.6%) and father (2.9%) (ABS 2016). It is estimated that the proportion of Greater Sydney residents with some Arabic heritage may be in excess of 10%, and continues to grow proportionate to other nationalities. With reference to these demographics, Arabic music seems to be under-represented within Australian music education at all levels.

As a performer, I compose and employ improvisational techniques to communicate musical information. There is evidence that the detail, nuance and subtlety of musical communication is more readily observed and quantifiably reported by Arabic listeners (Ayari and McAdams 2003). In part, I seek to investigate whether this might be due to the tonally expanded melodic environment of Arabic music. Can I enhance the quality and resolution of my musical communications by incorporating microtonality?

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<sup>4</sup> I have encountered this problem within my own recording and performance practice. An Australian trained singer with whom we work with Masha's Legacy suggested we perform and record a lullaby famous throughout the Arabic world, *Yalla Tnam Rima*, made famous by Fairuz and sung in *maqām bayātī*. The singer was not able to accurately pitch the half-flat second, so she altered the presentation to incorporate a flat second (Phrygian mode, or *maqām kurd*). In the review phase, our reviewers and producers detected the alteration and gave us the feedback that she was 'singing it wrong, this is not "*Yalla Tnam Rima*". As the recording was for international release and we prioritised retention of cultural sensitivity and technical accuracy, we re-recorded the vocal with a wonderful Lebanese-origin singer who was able to present the melody accurately with the half-flat tone *sīkāh*.

### 3.3 Maximising opportunities

Recorded and otherwise documented examples of intercultural musical and creative practice crossover within this paradigm abound. There are numerous examples since the late 1950's of Arabic crossover music with non-Arab (particularly jazz) composers and performers, including the Arabic musical forays of Duke Ellington, Ahmed Abdul-Malik, Johnny Griffin, Salah Ragab, Charlie Mariano, Sonny Fortune, John Surman and many others. The common element among these exponents is the predominant use of 12-tone chromaticism. Many musicians engaged in the field avoid the incorporation the microtonality intrinsic to the enhanced melodic environment of Arabic *maqāmāt*.

The motivations behind artistic endeavour incorporating interculturalism in this domain are at the core of this issue. If the aim is to find a common ground and/or offer a symbolic model of synergistic collaborative effort, my view is that it can't possibly serve in a positive way if the contributors from the non-Arab side impose a set of restrictions represented by exclusive use of evenly-tempered 12-tone chromaticism. My instinct suggests this can only limit the expressive ability of those who have a richer concept of tonality borne by their cultural attachments. My endeavours in this field are predicated on my conviction that the expressivity, meaningfulness and acceptance of intercultural musical collaborations involving crossover with Arabic artists can be strengthened if all contributors take steps to be more aware of the musical and technical paradigm in which their collaborators operate. This can work both ways, for example if non-Arab musicians make efforts to learn about *maqām* practise including microtonality, and (for example) if Arabic musicians develop an enhanced understanding of non-Arab practices, harmony and compositional techniques.

## 4. Parameters

### 4.1 Definition of Arabic music

The music of the Arabs encompasses the secular and sacred musical practices of disparate ancient sources as well as the evolving contemporary music-scape of the modern era facilitated by widespread and instantaneous dissemination through digital media and other distribution. Music played a vital role in the development of cultural identity in many new Arabic nations such as Egypt, Lebanon, Syria and the area around Jerusalem after secession from the Ottomans and in the post-European colonial era (Thomas 2006). With roots in the music of the Arabian Peninsula and Mediterranean North Africa, there exist a variety of opinion among academics and analysts of what “true” Arabic music is (Racy 2003).

Arabic music in the context of this study refers to a set of common traditions, principles and practices acknowledged internationally by practitioners and academics, including within countries of origin, diaspora communities, and the substantial movement between and within these communities and across the globe. A hallmark of the idiom is the incorporation of evenly tempered microtones (with regional, cultural and contextual variants) within exclusively heptatonic *maqāmāt* (Touma 1996). This effectively equates to a 24-tone chromatic conception (Ghrab 2005) though in practice it is seldom conceptualised in this way. Other idiomatic hallmarks include Arabic language text (in songs with text), *taqāsīm* and attendance by *sammi'a*, and the phenomenon of *tārāb*. Long standing regional musical traditions exist in many areas including Egyptian *baladī*, Andalusian forms including *al-Muwashahat*, the deep link between Sufism (and other ancient religious) and the *nāy*, and other sacred and secular applications. However, the terms “Arab” and “Arabic” do not refer to a specific religion, race or ethnic group: rather to a shared set of cultural values. This musical context is distinct from Turkish and Persian music, with which Arabic music practice has many points of intersection.

### 4.2 Tuning standard and range

In accordance with the resolutions of the 1932 Cairo agreement (Thomas 2006) and subsequent mainstream music practice, the tuning standard employed for this research process has been a 24-tone evenly tempered octave tuned from A=440Hz. In practical terms, this means a standard digital tuner has been used to test and fine-tune tunings for all tones: for the quarter tones the aim has been to get the tuning needle to alternate or “flick” between 50c sharp and 50c flat from the adjacent “pure” (12-tone chromatic) tone or where tuning of the note could be caused to “flick” by fine variations in embouchure pressure. Regional or *maqām* variant *nim* (flat) and *tik* (sharp) tunings can then be achieved by fine embouchure control in conjunction with aural adjustment when playing in ensemble<sup>5</sup>.

In general, I have restricted this discussion of microtonality to the comfortable playing range of the saxophone between (written) D above middle C and the D two octaves above (see [section 6](#) for detailed justification). There are substantial problems achieving quarter-tones below low D due to the construction of the instrument. These notes are also lost if the G<sup>‡</sup> modification is deployed ([section 8.2.1](#)). There are available quarter-tones in the upper and altissimo range, but I have so far concentrated my attention on the middle two octaves as described and problem-solved upper- or altissimo-range quarter-tone solutions as required.

### 4.3 Instruments Tested

The principal saxophone used to formulate this technical microtonal approach has been my Selmer 1954 Super-Balanced Action alto saxophone. I have also tested, fine tuned and verified on the following saxophones:

Alto saxophones

- 2 Selmer mk VI's (both 1974);

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<sup>5</sup> My current tutor, Adnan Barake is very much an aural player with excellent pitch perception, and has been trained within the Syrian pitch context. He has a heightened sense of micro-tuning through his musical training, and has encouraged my sensitivity to *maqām* variant or otherwise culturally appropriate tunings. His preference for tuning of quarter-tones, in general, is 40 cents flat of the tempered 12-tone chromatic tones tuned with reference to A=440 (for example this is how he sets up the microtonal channel when composing scores on Cubase: an area we have identified as a current limitation of many software applications). In latter stages of practice, I have adjusted the pitch I aim for to Adnan's standard of 40c flat.



- Selmer Series II and III;
- Yanagisawa 992 and 880;
- Yamaha Custom 82Z
- Yamaha 62.

#### Soprano saxophones

- Yanagisawa 901 (single piece);
- Selmer Series II
- Selmer Series III (silver).

#### Tenor saxophones

- Selmer Super Balanced Action (1954)
- Selmer Mk VI
- Yanagisawa 991
- Yamaha 62
- Yamaha Custom 82Z

By and large, the first choice (and any subsequent hierarchy of) fingerings holds for all the saxophones tested within approximately 10% tuning variation (5% tolerance either side of correct tuning). It is therefore assumed by extrapolation that the fingerings derived will be reasonably consistent among saxophones built in a similar fashion. It is possible due to construction differences there may be more accurate fingering alternatives on other brands and models of saxophone not listed above.

I noted when testing the various instruments that the fine details of instrument setup are crucial to the production of accurate quarter-tones. Microscopic details such as key height, venting, cork and felt bumper thickness, spring tension, and other aspects require fine attention for accurate production of the required notes and ease of facility. I drew upon and developed my functional mechanical understanding of the instrument to be able to make necessary adjustments, and have benefitted substantially from having a close relationship with expert instrument technicians (Steve Giordano and Dan Waples).

#### 4.4 *Tārāb*: aspirational guidelines

I have applied a guiding set of overarching principles to my musical approach in the adaptation of Arabic *maqāmāt* into my musical idiolect on saxophone derived from my understanding of *tārāb*. Similar philosophies (with cultural and regional variations) occur in many indigenous or ethnic artistic cultures: Rasa and Duende are explicitly referred to in the study and performance of Hindustani (Pudaruth 2016) and Flamenco (Lorca and Di Giovanni 1998) traditions respectively. I have not attempted to comprehensively or systematically deconstruct the performance outcomes resulting from engagement with this philosophy. My feeling is that many aspects of *tārāb* are unquantifiable, and it seems to me at odds with the practice to approach it from a position of incorporation of clinically dissected constituent elements.

In the absence of a more accurate English translation, many of my Arabic musical contemporaries describe *tārāb* as playing with “feeling”. Some people may play with the “right” feeling the first time they play a violin, while others may play for years with a psychology at odds with the practice. While they may play technically correctly, they may never play with the right feeling. Even as children, most Arabic musicians are connected with this philosophy and set of aesthetic principles throughout their process of musical development. The predisposition towards or ability to accumulate wisdom, cultural understanding and human empathy certainly seem to contribute towards a mindset that can produce a performance with the right “feeling”.

I have found by observing and educating myself about the culture of *tārāb* that a set of broad principles can be inferred to inform my philosophical and aesthetic musical development concurrently with technical issues related to adaptation of *maqāmāt* to the saxophone. These include but are not limited to:

- a strong focus on intonation, balance and tuning;
- beauty of tone (a highly subjective matter);
- subtlety of approach;
- an empathetic approach towards other musicians (in the ensemble) and audience members;

- technical and contextual appropriateness; and
- choice of repertoire.

These principles apply during performance of the heterophonic melodies that are a hallmark of the Arabic tradition, as well as during set solo parts and during *taqāsīm* or *mawaal*. During improvisation, melisma and extemporisation, Arabic audiences often respond emphatically to the subtle and nuanced placement of a single note (often a quarter-tone) that indicates an expert level of understanding of *maqām* modulation or emotional connection. Rhythmic displacement is often used to great emotional effect during repeated melodic phrases that may progressively detach from the rhythmic centre provided by the ensemble.

Conversely, it has been instructive for me to develop some awareness of elements that could obstruct the flow of *tārāb*. These include conspicuous interpolation of cleverness or ego, poor tuning, aggressive or otherwise unsuitable tone, inappropriate dominance in ensemble, the absence of mastery of technical elements, or unfamiliarity with repertoire.

#### **4.5 *Maqām bayātī***

My initial approach towards development of a performance conception of *maqāmāt* was based on my discovery of the two notes F half-sharp and C half-sharp on alto saxophone. The placement of these tones is consistent with the *rast* tone row starting on D (F *rast* in concert pitch). In a closely analogous way in which the Greek modes are derived from the major scale, numerous *maqāmāt* can be thought of as being derivatives of the *rast* tone row as shown in Figure 2.

## The rast tone row and derivative maqāmāt

Conceptualised for alto saxophone D rast = concert pitch F rast, or soprano or tenor sax = concert pitch C rast (parent key)

Rast

Bayātī

Sīkāh

Jihār kāh

Yikāh  
(8vb)

Ḥusaynī

ʿirāq  
(8vb)

Figure 2: The rast tone row and derivative maqāmāt

Each *maqām* is defined by the lower *jins*: deviation from the rast tone row in the choice of upper tones is possible (and frequent). In figure 3, common forms of each *maqām* are presented with an attempt to maintain the consistency of the placement of quarter-tones (F and C half-sharp).

*Maqām ḥusaynī* is normally conceptualised as (derived from) the 6<sup>th</sup> mode of C rast (*ḥusaynī* is the Arabic name of the note A) and has symmetrically placed quarter-tones on the second note of each tetrachord. As can be seen in Figure 2 this requires the production of G half-sharp, identified as having no represented fingering in the discovered extended saxophone technique literature. The identification of this fact provided an initial impetus to this investigation. *Maqām ḥusaynī* is also often conceptualised in Arabic music theory and nay technique from D (Farraj

2007, Effat 2005). Transposed for soprano saxophone (consistent with Figure 2), this correlates with the note E, and the quarter-tones therefore have the same placement as for *maqām rast*, that is (the more easily replicable) F half-sharp and C half-sharp. For the purposes of conceptualisation and aural training, this second form of *maqām ḥusaynī* has proved most practical and is relevant for its close relationship with *maqām bayātī*.

In order to appropriately limit the information presented in this paper, *maqām bayātī* has been chosen as the exemplar for adaptation by the methodology presented herein. *Bayātī* translates as “my home” and can be a common starting point for students of Arabic music. This methodology may then be extrapolated for application to other *maqāmāt*, with additional consideration paid to context and the idiosyncrasies of each *maqām*. Therefore, drills, exercises, repertoire and compositions presented refer predominantly to *maqām bayātī*, with a few exceptions. *Maqām bayātī* and its main variants are presented in the most commonly conceptualised key of D in Figure 3. The brackets and labels refer to the *ajnās* contained within.

1. Maqām Bayātī

2. Maqām Ḥusaynī

3. Maqām Bayātī Šūrī

Figure 3: *Maqām bayātī* and variants

Maintaining a focus on the aspects of technical retraining, the greatest efficiency in practise was gained by restricting the focus to the production of one quarter-tone within the tetrachord

(rather than the entire *maqām*). Practising in this way also served the purpose of strongly establishing the tonality of *maqām bayātī* while deliberately allowing freedom of choice of tones in the upper *jins*. This has been a central principle in my formation of a contextual approach towards modal modulation during *taqāsīm*.

#### 4.6 Prioritisation of keys

I have observed through my performance practice with Arabic ensembles is that not all 12 (or 24) theoretically performable keys are used. The most commonly employed tonal centres and available *maqāmāt* are represented by what is attainable by using the standard set of 7 *nāys* with only occasional exceptions. This observation has been verified in text (Effat 2005), through transcription and performance of a significant representative body of Arabic repertoire, and in consultation with experts. Certain quarter-tones are not able to be produced on other instruments such as violin or *ūd* due to physical limitations such as open strings, and practitioners therefore tend to avoid playing in the *maqāmāt* these unattainable notes would correspond to. This fact has helped define and limit the transposition of material for the saxophone: a fully 12-tone (or 24 tone) conception is not required in practice.

I have therefore limited my focus in transposition to saxophones (Eb and Bb) of all material for *maqām bayātī* to the (concert pitch) keys of C, D, E, F, G, A and Bb, corresponding exactly with the tunings of the standard set of *nāys*. This corresponds to the transposed keys of A, B, C#, D, E, F# and G for alto saxophone, and D, E, F#, G, A, B and C for soprano/tenor saxophone. Combining these two sets of transpositions leads to a set of keys in which *maqām bayātī* (and variants) has been prioritised on saxophone as A, B, C, C#, D, E, F#, G. The prioritised quarter-tones are therefore B<sup>♭</sup>, C<sup>♯</sup>, D<sup>♭</sup>, D<sup>♯</sup>, E<sup>♭</sup>, F<sup>♯</sup>, G<sup>♯</sup>, A<sup>♭</sup> and A<sup>♯</sup>.

The remaining (12-tone) chromatic keys of Bb, Eb, F and G#, correlating (in *maqām bayātī*) with the quarter-tones C<sup>♭</sup>, F<sup>♭</sup> and G<sup>♭</sup> have been covered in practice, but not with the same rigour applied to the more commonly encountered keys. However, as I integrate *maqām*-derived microtonality deeper into my concept and technique, I have highlighted these key areas as

significant points of difference to explore. To the best of my knowledge, *maqām bayātī* and its variants are never encountered in Arabic music in the (theoretically possible) half-flat or half-sharp keys. I have practiced in half-flat and half-sharp keys solely as a cross-referencing technique to verify the tuning accuracy of the quarter-tones I have developed. Future exploration of this area may also provide interesting material as my process develops.

#### **4.7 Tonal aesthetics**

The mouthpiece/reed combination I usually use on alto saxophone for expressive music is an Otto Link 6\* hard rubber mouthpiece with a Vandoren Classic 2.5 or 3 strength reed. Many of the fingerings tested produced stuffy, resistant notes. I found if I used a tonally brighter, clearer mouthpiece such as a Selmer C\* or Selmer Soloist E, the tone produced on these stuffy notes was clearer and the overall result was more homogenous. In all cases, reeds and mouthpieces had to be matched to produce a result on the easier side of (what for me is) a medium pressure setup. I expect further investigation of articulator equipment (reeds and mouthpieces) will produce a greater range of solutions with varying appropriateness for performance within the *maqām* tonal environment.

The use of an easier mouthpiece-reed combination has implications for playing in the upper- and altissimo-range on the saxophone. I have found I require a different approach to practice in the altissimo register using a setup optimised tonally for Arabic music.

In general, I found playing with an overall quieter volume and lower air pressure reduced problems of dynamic consistency across the range while greatly facilitating the nuanced approach required for the performance of idiomatic Arabic repertoire including *taqāsīm*.

#### **4.8 Language proficiency**

I found my study in this area was significantly supported by learning to speak, read and write basic Arabic, including phonetics, vocabulary, grammar and regional variants. My independent learning in this area was supported and enhanced by studying two tertiary units of Arabic language

classes. This aided my understanding of language and concepts (for example *tārāb*, note names and *maqāmāt*) that often have no English equivalent. I found it significantly aided with the social etiquette necessary for the fluid exchange of musical information during my process of learning from Arabic teachers and practitioners. Additionally, I have been able to do basic research in Arabic, for example keyword searches that have uncovered information I may not have accessed in the absence of functional language ability.

A substantial amount of the Arabic music study I undertook prior to this investigation was conducted during numerous visits to Israel, learning from Arabic musicians with religious/cultural background including Islamic, Jewish, Druse, Kurdish and Christian. My strong proficiency in Hebrew language similarly aided this process.



## 5. Interviews conducted as part of this research

Several players internationally were identified as being exemplars within the idiom of application of saxophone performance to the Arabic *maqām* tonal and aesthetic environment. Two players were interviewed.

### 5.1 Basel Rajoub

I met and interviewed Syrian saxophonist Basel Rajoub in Berlin Germany on 3 October 2016. Of the five categories of performers identified in [section 2.1](#), Mr. Rajoub has been identified as most closely associating with the second category [2.1.2](#), contemporary saxophonists deriving material from a *maqām*-based approach. His background as a (Western) classically trained trumpet player is crucial, as is his apparently reluctant conversion to saxophone following an injury that prevented him continuing to the elite level on trumpet.

An analysis of his performances including recordings and live concerts in conjunction with the interview reveals a less structural approach to microtonality and other cultural elements. Mr. Rajoub's approach seems more aurally grounded than thoroughly technically informed per se. As an ethno-jazz player, it became clear in the interview that his approach is predominantly intuitive and any Arabic elements including microtonality, tonal approach and ornamentation are more a product of performance expression through cultural immersion than they are a product of specific or intentional interpolation of pre-considered cultural elements. In this vein, our interview tended less towards discussion of specific technical issues as per the questionnaire and more toward broader issues of aesthetics, cultural understanding and affinity. His intuitive playing is based on this cultural knowledge, and any incorporated microtonality is more a natural product of the enhanced aural skills resulting from this cultural understanding than a result of specific technical study.

## 5.2 Wisam Khassaf

I was first introduced to the playing of Wisam Khassaf by *ūd* player Joseph Tawadros, who referred me to several youtube.com clips of his performances, and was able to identify him as an Arabic musician *par excellence*. During a subsequent conversation with Mohammed Lelo, a Sydney-based Iraqi *qānūn* player with whom I frequently collaborate, I learned that Wisam's father (also a highly regarded *qānūn* player) and Mohammed are friends and professional contemporaries, and I am grateful to Mohammed for his efforts in establishing my connection with Wisam. I interviewed Wisam Khassaf in Dubai on 2 Nov 2016. An internationally acclaimed saxophone and *nāy* performer, Mr. Khassaf is recognised as one of the leading voices in contemporary and traditional Arabic music and is in high demand as a performer and session musician. He has been associated for this study with performers from the first group, [2.1.1](#) Arabic music on saxophone.

Born and raised in Iraq, Mr. Khassaf served as a member of the Iraqi Army band until 2004. He was actively discouraged from playing traditional music during his time in the Army band, his superiors prohibiting him from practicing or performing *maqāmāt*, microtonality or traditional repertoire. Just prior to the U.S. led coalition invasion, he left Iraq and eventually settled in Dubai. He recounts a long gestation period during which he made the active decision to focus on the Arabic way of playing, inspired by Samir Srour. His period of technical and kinesthetic retraining spanned many years of dedicated practice (8+ hours per day) and his approach was very analytical, systematic and comprehensive. I believe his way of playing the saxophone is unique in the world, and have never witnessed anything quite like it.

I benefitted immensely from my extended conversation with Mr. Khassaf. His generosity, time and eagerness to share his information were invaluable to my process. We spent quite some time talking about fingerings, note transitions, ornamentations, repertoire and tonal aesthetics. In particular, I was able to both verify and contextually discount some of the fingering options I had identified. In consultation with him I formulated my current approach to a mechanical solution for production of G<sup>‡</sup> and picked up several effective solutions for execution of idiomatic ornaments

and trills. Moreover, after having observed Mr. Khassaf's playing approach I was able to move my thinking away from a strictly modal approach to *taqāsīm* and began to formulate a more chromatic approach following our meeting.

Curiously, Mr. Khassaf plays the alto saxophone with a double embouchure: he does not engage his top teeth on top of the mouthpiece. This is highly unusual for professional saxophonists. While I am unlikely to adopt this practice for my own playing, I think this fact significantly contributes to Mr. Khassaf's unique nuanced ornamental style, expressive tone and timbre. I think his use of a double embouchure combined with a close-lay mouthpiece, medium-soft reeds and deep familiarity with his comprehensive quarter-tone fingering technique enable Mr. Khassaf to perform the saxophone as a truly unencumbered machine through which he communicates his authentic Arabic musical information without impediment.

Another striking aspect of Mr. Khassaf's engagement with music is that he is also a highly skilled *nāy* player. The similarity of this coincidence with my own process not only aided our communications, it has provided me with grounds for speculation about the gravitation of musicians towards similar solutions for similar challenges.

## 6. Relevance of the Arabic *nāy*

Early in my process of adaptation of *maqāmāt* for saxophone, I discovered through investigation during practice that there were several non-standard fingerings that produced accurate quarter tones on the saxophone. These were F<sup>‡</sup>, C<sup>‡</sup> and B<sup>‡</sup>. At this stage, I understood little of the context for the use of microtonality. I had recently developed the ability to produce a functional sound on my *nāy ḥusaynī*, and had learned enough to understand the natural placement of the median second (¾-tone intervals) within the Arabic *maqām* set. I noticed an analogy of sorts between the placement of the quarter tone conceptualised in *nāy* technique as an E half-flat (actual pitch on *ḥusaynī* is B half-flat) in the lower tetrachord and the fingering for F half-flat I had discovered on saxophone. The natural placement of the second quarter tone on *nāy* in the upper tetrachord, conceptualised as B half-flat, has the same fingering on the 2<sup>nd</sup> and 3<sup>rd</sup> overtones. This note corresponds (after transposition) with the placement of the C half-flat I had discovered on saxophone. These discoveries gave me the starting point for a functional understanding of the relative placement of microtonal intervals within *maqāmāt*<sup>6</sup>.

My experimentation with the manufacture of *nāys* arose simply due to my inability to purchase or procure quality instruments in Sydney. I knew the prime *nāy* is *dūkāh* (D) and I didn't have one. I had heard about people making *nāys* from plastic tubing, particularly electrical conduit. I understood the basic dimensions of the *nāy* – 8 nodes and 9 internodes and the approximate placement of the tone holes. I spent several months experimenting with several gauges of PVC conduit and produced many *nāys*. By using a hand-held propane burner, I was able to heat focused bands of the conduit until they were workably pliable and used a length of hemp twine to wrap around the section and cinch it to

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<sup>6</sup> My feeling having studied *maqāmāt* and *nāy* performance is that the *nāy* may be a parent or prime instrument from which the entire Arabic music system may have developed. There seems to be more than a coincidental relationship between the placement of all naturally occurring tones (including quarter tones) on the *nāy* and the intervallic structure of all *maqāmāt* I am aware of to this point. The *nāy* is an ancient instrument with connection to spirituality and religious observation. Archaeologists have discovered numerous playable antecedents with close similarity to the *nāy* dating at least to the 18<sup>th</sup> Pharaonic dynasty (1550-1292 B.C.) (Effat 2002). Made from *Arundo donax*, a prevalent and naturally occurring species found all through the Middle-East, the instrument is very simply produced by the selection of a length of cane with 8 nodes/9 internodes, knocking out the internodal membranes and burning or drilling 7 holes in consistent relative positions. I think it is possible that due to the simplicity of its production and the symmetrical nature of its overtone series, this instrument became a prime instrument in the formation of vocal conception and the production of subsequent instruments used in Arabic and pre-Arabic music, many of the derivatives of which (for example flutes, oboes, violin, piano and others) are used in contemporary non-Arab music.

replicate the nodes. I experimented with hole positions and sizes by observing the *nāy ḥusaynī* I had purchased and studying images of cane *nāys* found on the internet. While the results were purely empirical, I did consistently produce instruments that played an accurate *rast* tone row (relative to the overall pitch of the instrument) from very early in the process. I produced several *dūkāh* (D) and *nawa* (G: companion to *dūkāh*) instruments that produced the required tones within an acceptable tuning margin in the fundamental, first and second set of overtones. Initially I used these instruments to develop my *nāy* technique and for early recordings and some live performances. I postulate that for some of the plastic nays, the third set of overtones may be compromised due to factors including limitations of available bore dimensions, the absence of a taper on the tube that is present in cane *nāys*, the inconsistency of calibration of nodal obtrusions, the absence of consecutively shorter internodal segments (as with natural cane) and other factors.

I initially used plastic tubing to produce *nāys* due to a lack of appropriate raw material. *Arundo donax* is found extensively in Australia, and is classified as a noxious weed species in NSW ([weeds.dpi.nsw.gov.au](http://weeds.dpi.nsw.gov.au), accessed May 2016). There has been only one commercial plantation, in Langhorne Creek South Australia. This was operated by Reeds Australia and the cane was used to make high quality clarinet and saxophone reeds until the sale of the property in 2012, when the company changed hands. I spoke with former director and clarinetist Alan Mills about numerous factors relating to cane cultivation and reed production. I also visited the former plantation in March 2012, at the time standing intact but unused.

While I have identified wild stands of cane in Australia NSW, South Australia and Queensland in hundreds of locations, specific growing conditions relating to water type and availability and an overall longer (or uninterrupted) growing season during which the plants do not enter a hibernation state mean that in most cases the internodal sections are too long, rendering the cane unusable for the manufacture of natural *nāys* (or for that matter, saxophone and clarinet reeds). It has been suggested to me that an alternative method of production could be to glue together shorter sections of cane including a node and an internodal section. While this is possible and an option worth exploring, my preference was to manufacture *nāys* from single lengths of naturally occurring cane.

While studying in the Middle-East in 2014, after a lengthy and creative research process, I located through musician contacts (Amal Murkus) and purchased a set of seven professional *nāyāt* (Saber Kawala brand from Egypt) in Acre. This set includes C *rast*, D *dūkāh*, E *busalik*, F *jihār kāh*, G *nawa*, A *husaynī* and B-flat *awj* and represents what is widely accepted as a standard set (Effat 2005).

To date, I have located only one length of cane in Australia suitable for production of a *nāy*, near South West Rocks on the Mid North coast of NSW. The internodal dimensions and bore are highly comparable with the dimensions of my Saber Kawala *nāy dūkāh*. After curing the cane for 3 years, I tentatively knocked out the internodal membranes and drilled holes with dimensions and in positions blueprinted from my professional instrument. The resulting *nāy*, while not perfect, is a good replica of a *nāy dūkāh*<sup>7</sup>.

The primary *nāy* is the *dūkāh* or D *nāy*. The pitch is measured from the second note of the natural scale (Rast tone row) with fingering {T 123 12}. Each *nāy* has a paired counterpart, pitched up a perfect fourth from the lower one: in the case of *dūkāh*, the pair is *nawa* in G. There is a strong analogy here between members of the standard saxophone family, for instance between soprano saxophone in B-flat and alto saxophone in E-flat and (also tenor-alto and soprano-sopranino).

Arabic music names each tone individually, and the upper octave of a note has a different name and often different function within the *maqām*. Some *maqāmāt* are structurally different between registers. Due to this highly specific nature of tonality, and the register in which the instruments most comfortably perform (that is not at either extreme of the playable range), I find the greatest representation for performance of melody is the pair of soprano (matching *dūkāh*) played predominantly in the first and second octave (or tenor played predominantly in the second and third octave), and alto played predominantly in the second octave. Figure 4 illustrates the relationship between *dūkāh* and the written performance range on soprano and tenor. As is evident, if soprano is chosen for this analogy, the lower end of the available range on *dūkāh* is not accessible below a concert B-flat, thus a minor third of range is lost at the bottom end. If the tenor is chosen, even the

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<sup>7</sup> I spent 4 years cultivating and documenting the growth and progression of a small stand of *Arundo donax*, with a view to observing the life-cycle of the plant and testing the appropriateness of the product for reed (for saxophone, clarinet, oboe, bassoon and other reed instruments) and *nāy* production. My cane did not produce any sections with dimensions appropriate for the manufacture of *nāys* (I suspect due to reasons related to climate and water availability), however testing for bassoon and oboe reeds and single-reed family reeds is ongoing.

extreme lower end of *dūkāh* is reachable, but the more commonly used upper tetrachord from D to G in the second octave falls in the altissimo range. While it is possible to reach these notes, I find a more comfortable and sonorous result is achieved by performing instead on soprano. The alto saxophone clearly straddles the “theoretical” range of all *nāyāt* most comfortably, so my overall judgement is that adaptation of *maqām* technique to performance on the alto saxophone is a better fit for most scenarios, but that performance on either tenor and soprano is also acceptable depending on the range desired in a particular piece. Where substituting for *mizmar* (or *zurna*, the Arabic double reed shawm), I find the sonority of the soprano is usually a more appropriate fit.

Having the availability of at least a pair (alto-soprano or tenor-alto) can also enable greater ease of performance, particularly in *maqāmāt* where the required quarter tones might involve less complex fingerings on one saxophone compared with the other. Obviously, this technique might have application to saxophones pitched in C and F as well, making the comparison closer to the quiver of 7 standard *nāys* (plus helpers) carried by most professional *nāy* players. However, the eventual aim in this case was to devise a method of quarter-tone production to enable performance of all *maqāmāt* in all appropriate keys on one saxophone.

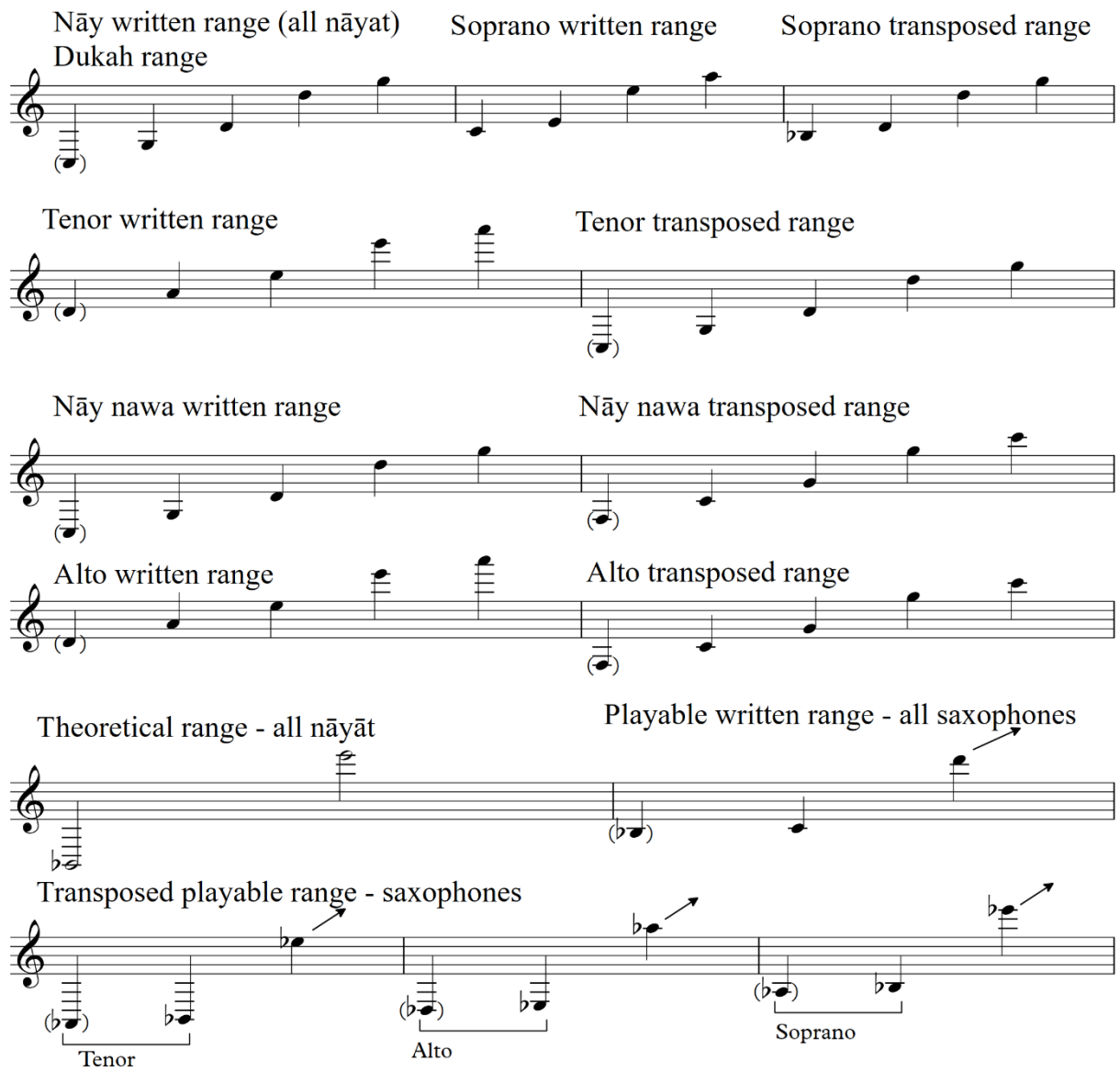


Figure 4: Comparative instrument ranges

The lowest notes indicated in brackets for all *nāyāt* here is C, achieved by playing all holes closed and on the fundamental frequency. While this note is technically achievable by advanced performers, most conception, instruction and performance practice have G (*yikāh*) as the lowest note. In practical terms, most performance occurs within the interval of a perfect 11<sup>th</sup>, from D below the first treble line to G above the 5<sup>th</sup> treble line.

The lowest note on most unmodified saxophones is a written B-flat. However, the modification to the instrument made as a compromise to achieve the frequently used note G half-sharp (discussed in [section 8.2.1](#)) eliminates the easy production of low B-flat, B and C#. Hence the lowest note available



when deploying this modification is low C (or D if the note C-sharp is required). This accounts for the written and transposed playable ranges depicted in Figure 4.

To summarise, the development of my performance skills on the Arabic *nāy* aided this investigation for the following reasons:

- it helped me develop a fingering and movement approach to the physical execution of idiomatic Arabic performance on a native instrument in the context of adaptation to a physical conception on saxophone;
- it served as the tool through which I processed and applied performance principles and theoretical concepts in my development of a conceptual approach to the performance of Arabic music, particularly the relative placement and use of microtones;
- performance on the *nāy* informed and supported the development of my required supplementary aural retraining not supported by immersion in the standard 12-tone chromatic tonal environment;
- the frequent presence of the *nāy* in recorded and commonly performed repertoire provided a broad basis for transcription and performance of Arabic music. This further supported fundamental areas including idiomatic ornamentations, *taqāsīm*, tone and expressivity and instrumental role within different musical settings; and
- it defined which keys and tonalities were appropriate for the idiom as discussed in [section 4.6](#).

## 7. Aural Retraining

The difference in pitch standards is one of the most fundamental areas of discrepancy between Arabic and non-Arabic music. For many musicians whose performance approach is based in the 12-tone tradition (myself included), the ability to accurately perceive microtonality represents a significant challenge to their ability to holistically engage with Arabic music<sup>8</sup>. Therefore, I have found it necessary to keep a constant stream of attention on developing my aural skills during observation, practice and performance of music based on Arabic *maqāmāt*.

My approach in this area could have benefitted early on from a more formalised structure and is ongoing. I think it would be far more natural for me to feel, hear and replicate the microtones if I had greater exposure to them earlier in my formative stages as a musician, particularly as a child.

I feel I have benefitted from basic practice with a tuner; playing technical patterns and exercises with careful attention to tuning and idiomatic expression; ensemble performance; recording and review; and most importantly singing.

My preferred method of musical conceptualisation is primarily a vocal concept - I prefer to sing in my “mind’s ear” as I play, when improvising and when playing set parts. It followed then that the preferred method for me to develop the specific microtonal approach required for performance of Arabic music was to learn to sing the quarter-tones: as discrete units and in the context of the intervals within a *maqām*, with mindfulness paid particularly to the fundamental median second ( $\frac{3}{4}$ -tone) interval.

My aim was to achieve this in all aspects related to my performance on saxophone: singing basic units (intervals, scale sections, patterns); singing microtonal repertoire (including traditional or commonly encountered Arabic repertoire and transcribed *mawwāl* sections); and singing improvised phrases before replicating them on the saxophone. My time spent rehearsing and performing (playing and singing) with the Andalus Arabic choir has been invaluable to this process.

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<sup>8</sup> This observation is based on my personal experience, conversations with and observation of other musicians during their development of Arabic music performance aptitude. This is an area in which I think it would be beneficial to dedicate substantial research resources.

Close attention to the tuner was required throughout. I found it contributed significantly to my process when I used the tuner to locate the exact pitch of any given note, either as a discrete unit or within a melodic phrase. Once the pitch(es) was (were) accurately located and internalised, I spent time practicing on and around the quarter tones without referring to the tuner, to hear and “feel” the exact placement of each note in its context. In this way I felt I expanded my aural perception relating to the quarter-tones and learned to accept the sound and feeling (resonance in the throat, vibrational frequency, embouchure pressure required) for each tone.

I am fortunate to have spent time in ensemble playing next to expert players of Arabic music. The sense of pitch of these players has helped calibrate and correct my tuning standard. In particular, my time spent with Mohammed Lelo on *qānūn*, Adnaan Baraké on *‘ūd*, Emad Nosir on violin, and vocalist Ghada Daher was invaluable to my process in learning and accepting the pitch standard.

## 8. Execution: development of a set of first choice fingerings for production of microtones relevant to Arabic *maqāmāt*

### 8.1 Presentation of the developed fingering conception

Through a systematic investigation of the instrument, the written sources previously mentioned, and discussion with other practitioners (notably Mr. Khassaf), I developed an optimal set of fingerings for performance of quartertones. Consideration of the unique challenges within the *maqām* environment counter-indicated some available solutions, and personal preference played a factor.

Tunings of fingerings were tested using either a standard digital tuner or tuning phone app (Pitch Lab Pro) as described in [section 4.2](#). As much as possible, I tried to play each note using a median amount of embouchure pressure, neither pinched up nor slackened off. This process of testing and refining initially lasted more than a year (and is still ongoing) in order to minimise the effect of variations in results: for example, between practice sessions, as a result of using different reeds, in different seasons, and other physical and environmental factors.

I have labelled keys and fingerings on the saxophone consistent with Figure 5 (below). RSK indicates ‘Right Side Key’, LSK is for ‘Left Side Key’.



Close attention to the microscopic details of instrument setup was critical to ensure optimal results. Key venting, bumper heights and spring tension all require specific attention to ensure correct intonation, smooth transitions and ease of execution of trills and other ornaments. An accurate instrument setup by an attentive and highly skilled technician was critical. Following this, I spent quite some time customising the thickness of cork bumpers, particularly on the mechanisms for RSK3 (side Bb), RSK2 (side C), LSK1 (side D) and LSK2 (side D#), the venting of the low C key (felt bumper) and ensuring the G# articulator bumper was in correct position such that the G# plateau vented appropriately to produce an accurate G $\sharp$  while not producing a metallic key sound when G# or G $\sharp$  were played (this can happen if over-adjusted).

It should be noted that Figure 6 appears from the player perspective while Figure 5 is the observer perspective, so the labels are on opposite sides. The nomenclature is consistent throughout.

# 24-Tone Chromatic Scale for Saxophone

optimised for performance of *maqāmāt*

The chart displays four systems of notes, each with its corresponding fingering diagram:

- System 1 (Notes: C, C#, D, D#, E, E#, F):**
  - C: R.S.K. 5 (Side F#)
  - C#: R.S.K. 5 (Side F#)
  - D: R.S.K. 5 (Side F#)
  - D#: R.S.K. 5 (Side F#)
  - E: R.S.K. 5 (Side F#)
  - E#: R.S.K. 5 (Side F#)
  - F: R.S.K. 5 (Side F#)
- System 2 (Notes: F#, G, G#, A, A#, B):**
  - F#: R.S.K. 4 (Side F#)
  - G: \* Special mod. required
  - G#: Or R.S.K. 3 (Side Bb)
  - A: R.S.K. 3 (Side Bb)
  - A#: R.S.K. 3 (Side Bb)
  - B: R.S.K. 3 (Side Bb)
- System 3 (Notes: Bb, B, B#, C, C#, C#, D):**
  - Bb: R.S.K. 3 (Side Bb)
  - B: Bis, R.S.K. 3 (Side Bb)
  - B#: R.S.K. 3 (Side Bb)
  - C: R.S.K. 2 (Side C)
  - C#: R.S.K. 2 (Side C)
  - C#: R.S.K. 2 (Side C)
  - D: L.S.K. 1 (Side D) (Opt), O.K.
- System 4 (Notes: D, D#, D#, E):**
  - D: L.S.K. 2 (D#)
  - D#: L.S.K. 2 (D#)
  - D#: L.S.K. 1 (Side D)
  - E: L.S.K. 1 (Side D), O.K.

\*\* Doesn't work with G # modification)

Figure 6: 24-tone chromatic fingering chart optimised for performance of *maqāmāt*

## 8.2 Discussion of the optimised fingering chart

While developed on my Selmer SBA alto, all fingerings indicated are my ideal set for alto, tenor and soprano. All fingerings work equally in both the written lower register and the octave above, except D<sup>♭</sup> (discussed later), and A<sup>♭</sup> which I prefer to use the first indicated fingering in the lower octave, the second in the upper octave on alto, the second fingering for both registers on soprano. On some tenors tested, the fingering for F<sup>♯</sup> can be unstable in the lower register. Some quarter-tone fingerings produce “stuffy” (resistant and muted) tones, usually more accentuated in the lower register.

### 8.2.1 G half-sharp

The principal *nāy* is D or *dūkāh*, which thus defines the home key for *maqām bayātī* as D, and *maqām rast* as C. The quarter-tones intrinsic to C *rast* (*rast-al-rast*) are E<sup>♭</sup> and B<sup>♭</sup>. These notes transpose on the alto saxophone to C<sup>♯</sup> and G<sup>♯</sup> respectively. Because of the fundamental nature of this key as the home key from which Arabic music theory is conceptualised, it was critically important to determine appropriate performance solutions to both these tones on alto saxophone. Solutions for the production of G<sup>♯</sup> are absent in the identified existing documented sources.

During the course of this study, two practically achievable solutions were identified and tested. The first of these is to wind out the articulation bumper screw above the G<sup>♯</sup> plateau. Thus, when the F<sup>♯</sup> key is pressed in conjunction with the G<sup>♯</sup> key, the G<sup>♯</sup> plateau partly vents. The tone produced is quieter and more resistant than surrounding standard notes. The tuning is calibrated by adjusting the articulation screw, thereby changing the degree by which the G<sup>♯</sup> plateau vents. The adjustment I found ideal on most instruments tested was to rotate this screw through exactly 540° (3 half turns).

The second solution was to modify the instrument by bending the D-key down towards the body to a degree that when the D key was depressed while playing G<sup>♯</sup>, it activated the articulation lever such that the G<sup>♯</sup> key was half-vented and a G<sup>♯</sup> was produced. The overall

result was a very similar physical situation compared with the first option discussed above, except with RH3 (D) pressed, not RH2 (F# key). The note was similarly stuffy and muted.

When I demonstrated this solution to Wisam Khassaf, he tested it for a while and discounted it for contextual reasons. I have since verified Mr. Khassaf's assessment: in context, G# is most commonly accompanied in a maqam by F#. A satisfactory F# is usually produced using the flute fingering (3<sup>rd</sup> finger of the right hand) however the modification meant that the plateau key adjacent to F did not close, so F# cannot be produced in this way. Therefore, performance using this fingering is technically impaired by an intolerable amount – much alternation between the 2<sup>nd</sup> and 3<sup>rd</sup> fingers of the right hand would be required, and the performance of idiomatic ornaments is rendered impractical.

For this reason, the first option involving the adjustment of the G# articulation screw is preferred until further options are explored. This modification bears with it several compromises which had to be incorporated into technique.

The first of these is to do with latent technique in the use of the left-hand “pinkie” (fifth) finger. Compared with other instruments in the family including flute and clarinet, the LH pinkie technique can be approached fundamentally differently on saxophone. With the modification, the G# articulation mechanism is effectively disabled. If the G# key is pressed while other notes are played (often done as a preparative step or to enable ease of facility) the G# plateau vents slightly and the desired note will not be produced. This therefore requires a LH pinkie technique more like that for a clarinet or flute. As my earliest and most developed performance “voice”, my technique and physical approach is most grounded in the saxophone, an aspect of which is this characteristic around the use of the LH pinkie. Preferring to play from a place unimpaired by technique, I found I require a significant amount of mindfulness during performance and applied quite some focussed attention on retraining within this constraint.

Another implication of the modification is that the G# key also opens when any of the LH low note fingerings are used. For me, this eliminates the practicality of the use of the



bottom notes C#, B and B Bb<sup>9</sup>. The modification also eliminates my most preferred fingering for D<sup>♯</sup>, as use of the RH pinkie low B-flat key also activates the G# key, rendering the fingering unusable. A good solution is depicted in figure 5 and discussed in the next section.

Overall, my current preference is to apply the G<sup>♯</sup> modification only for performance of repertoire substantially incorporating G<sup>♯</sup>. This involves a degree of pre-conception and currently provides me with an impetus towards a better solution.

In consultation with instrument technicians, I have devised several possible mechanical solutions for the production of G<sup>♯</sup>. These options remain theoretical at this stage as they have not been tested and involve modification of the instrument and/or fabrication of new mechanisms.

One possibility involves the construction and installation of an articulated mechanism on the G# plateau. Another suggestion is to install a new tone hole and articulation mechanism specifically for G half-sharp on the body of the instrument. Dutch saxophonist Raaf Hekkema has published details of just such modifications to a Buffet-Crampon alto saxophone on his website (Hekkema 2017), and my intention is to travel to Den Haag to consult with Mr. Hekkema and his instrument technician about this.

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<sup>9</sup> Wissam Khassaf demonstrated astonishing technique and physical prowess in performing these notes despite use of the modification by adjusting the span of his hand such that his RH thumb held the G# key down while also holding low C closed with the RH pinkie(!)

### 8.2.2 Discussion of technical execution and fingering options

Several notes have multiple appropriate solutions for the production of required quarter-tone to enable greater accuracy of intonation or to enable technically easier transitions. Performance selections are therefore based on appropriateness in context and options need to be aurally-kinaesthetically practiced beyond conception into deep muscle memory.

For D $\sharp$  in the second register, there are two appropriate choices: the duplicate of the lower D $\sharp$  in the second octave (pressing both the E-flat and C key with RH pinkie, plus use the octave key) or the LSK1+2 choice (LSK2 only is an acceptable tuning variant, depending on palm key venting). Tonally, the long fingering has a typically more muted and overtone-rich sound whereas the palm key option is more open and direct. Contextual application is discussed in [section 9.2](#).

E $\flat$ : using only the C-key to bring down the pitch of the E can result in the production of a slightly sharp E half-flat. This can be brought down if preferred and if the context allows (that is, if the G $\sharp$  modification is not used) by adding the low B key, LH pinkie in both the fundamental register and in the first overtone. The E half-flat produced in this way is slightly stuffer and more resistant, and is about 20 cents flatter.

The options of fingerings were surprisingly consistent between the alto, tenor and soprano saxophones tested. The greatest discrepancy was detected on A half-flat. On my SBA alto, the clear first choice is the 12-12 fingering, whereas on my Yanagisawa soprano the 12-1 choice is clearly more in tune. I have consequently developed a heightened awareness of this note and the contextual requirement to choose between these two similar fingerings.

The use of the side B-flat key RSK3 to produce the consecutive quarter-tone intervals A half-sharp, B-flat and B half-flat is noteworthy. It is of less practical importance in application to *maqāmāt*, however does allow easy access to the three tones when practicing 24-tone chromaticism and I expect to incorporate this feature in microtonal performance situations not related directly to *maqāmāt*.

The choice of D<sup>♭</sup> in the second register is dependant on context and whether the G<sup>♯</sup> modification is employed. A good alternative fingering is available as pictured at the bottom of Figure 5 (press side D and front C together). Again, the longer fingering produces a more resistant, overtone-rich sound while the palm key option is more open, faster-speaking and more susceptible to pitch variation with changing embouchure pressure. On my soprano I achieve a more in-tune result simply by pressing the side D key LSK1 without the front C key.

Movement between the standard fingering for D and E<sup>♭</sup> is technically clumsy. In the middle register, the use of the alternate D obtained by pressing LSK2 (with or without LH2 C key) is preferred in this situation. Additionally, the fingers of the RH (in particular the RH pinkie C key) may be kept down to facilitate trills and other movement between D and E half-flat.

## 9. Activation

### 9.1 Application to *maqām bayātī*

Figures 7 and 8 demonstrate the application of the first-choice fingerings to *jins bayātī* in the seven prioritised keys on alto and tenor saxophone respectively.

**Jins Bayātī**  
Fingering and Conceptualisation  
for Eb Alto Saxophone

The "Standard" Nay Set<sup>1</sup>  
Rast = C  
Dūkāh = D  
Busalīk = E  
Jihār kāh = F  
Nawa = G  
Ḥusaynī = A  
Awj = Bb

Eb = Nawa  
Transposition

Jins Bayati  
Conceptualised on all nays in the same way.

The figure displays seven staves of music, each representing a different key from the 'Standard' Nay Set. Each staff consists of a musical line and a corresponding fingering diagram. The keys and their fingerings are as follows:

- Rast:** Musical line in C major. Fingering diagram shows 'Bis' (index finger) and 'R.S.K. 3 (Side Bb)' (ring, middle, and thumb fingers).
- Dūkāh:** Musical line in D major. Fingering diagram shows 'R.S.K. 2 (Side C)' (ring, middle, and thumb fingers).
- Busalīk:** Musical line in E major. Fingering diagram shows 'L.S.K. 2 (D#)' (little, ring, and middle fingers), 'L.S.K. 1 (Side D)' (little, ring, and middle fingers), and 'O.K.' (index and thumb fingers).
- Jihār kāh:** Musical line in F major. Fingering diagram shows 'L.S.K. 2 (D#)' (little, ring, and middle fingers) and 'O.K.' (index and thumb fingers).
- Nawa:** Musical line in G major. Fingering diagram shows 'O.K.' (index and thumb fingers).
- Ḥusaynī:** Musical line in A major. Fingering diagram shows 'O.K.' (index and thumb fingers).
- Awj:** Musical line in Bb major. Fingering diagram shows 'O.K.' (index and thumb fingers).

Figure 7: *Jins bayātī* fingering conception for Eb saxophone (7 keys)

Bb = *Dūkāh*  
Transposition

# *Jins Bayātī* Fingering and Conceptualisation for Bb Saxophone

The "Standard" Nay Set<sup>1</sup>

*Rast* = C  
*Dūkāh* = D  
*Busalik* = E  
*Jihār kāh* = F  
*Nawa* = G  
*Ḥusaynī* = A  
*Awj* = Bb

*Jins Bayati*  
Conceptualised on all nays in the same way.

The figure displays seven rows of musical notation, each representing a different key from the 'Standard' Nay Set. Each row consists of a treble clef staff with a single melodic line, followed by a vertical fingering diagram. The fingering diagrams use solid black circles to indicate fingered notes and open circles to indicate natural notes. The keys and their corresponding fingering concepts are:

- Rast:** Shows a natural D note on the second line. Fingering diagram: 4 fingers on the top four fingers of the right hand, thumb on the bottom finger of the left hand.
- Dūkāh:** Shows a natural D note on the second line. Fingering diagram: 4 fingers on the top four fingers of the right hand, thumb on the bottom finger of the left hand.
- Busalik:** Shows a natural E note on the second space. Fingering diagram: 4 fingers on the top four fingers of the right hand, thumb on the bottom finger of the left hand.
- Jihār kāh:** Shows a natural F note on the second space. Fingering diagram: 4 fingers on the top four fingers of the right hand, thumb on the bottom finger of the left hand.
- Nawa:** Shows a natural G note on the second space. Fingering diagram: 4 fingers on the top four fingers of the right hand, thumb on the bottom finger of the left hand. Includes the label "Bis" above the diagram.
- Ḥusaynī:** Shows a natural A note on the second space. Fingering diagram: 4 fingers on the top four fingers of the right hand, thumb on the bottom finger of the left hand. Includes the label "R.S.K. 2 (Side C)" above the diagram.
- Awj:** Shows a natural Bb note on the second space. Fingering diagram: 4 fingers on the top four fingers of the right hand, thumb on the bottom finger of the left hand. Includes the label "L.S.K. 1 (Side D) (Opt)" above the diagram.

Figure 8: *Jins bayātī* fingering conception for Bb saxophone (7 keys)

## **9.2 Unique fingering combinations**

All required quarter-tone fingerings represent the need for a certain level of retraining for the saxophonist whose technique is based in 12-tone chromaticism. However, there is a sub-set of unique fingering combinations that involve substantially different physical movements than is encountered in standard non-microtonal technique. The seamless incorporation into my idiolect thus required identification of all such combinations and the development and repetitive practice of simple drills to develop deep muscle-memory.

Trills (all 12 chromatic keys)  
 For careful Aural and  
 kinesthetic training

The musical score is organized into seven pairs of staves, each representing a different chromatic key. Each pair includes a primary trill and a secondary trill in the opposite key, indicated by a bracket labeled "Secondary importance".

- 1.** Primary trill: C major (C4-D4). Secondary trill: C minor (C4-B3). Annotation: "Secondary importance".
- 2.** Primary trill: C# major (C#4-D#4). Secondary trill: C# minor (C#4-B#3).
- 3.** Primary trill: D major (D4-E4). Secondary trill: D minor (D4-C#3).
- 4.** Primary trill: D# major (D#4-E#4). Secondary trill: D# minor (D#4-C#3).
- 5.** Primary trill: E major (E4-F#4). Secondary trill: E minor (E4-D#3). Annotation: "(Similar to D# - E trill)".
- 6.** Primary trill: E# major (E#4-F#4). Secondary trill: E# minor (E#4-D#3). Annotation: "V. Easy trill - hold low C key down".
- 7.** Primary trill: F major (F4-G4). Secondary trill: F minor (F4-E3).

Additional annotations include an asterisk (\*) above the first staff of each pair and the text "Secondary importance" above the second staff of each pair.

Figure 9: Trills to and from relevant median 2nds

All median second trills were practiced (Figure 9). These were subjectively analysed as being “easy”, that is not requiring a significant level of kinaesthetic retraining, or “unique”, that is those unique to the *maqām* tonal environment and involving physical movements never encountered in standard 12-tone technique. These unique combinations are numbered and discussed.

All trills marked with \* are not easily facilitated (especially at velocity) but have no identified alternatives. Awareness of these limitations greatly aids decision-making processes for performance and incorporation into mechanical technique.

The trills marked “Secondary importance” relate to tonalities identified as seldom if ever encountered in Arabic music performance situations ([section 4.6](#)). The primary focus has been towards developing facility first in the relevant keys, while developing and maintaining an awareness on omitted keys.

1. B<sup>♭</sup> - C: this unusual combination requires trilling between keys RSK3 and RSK2. A slight embouchure pinch *tik* is often required for B<sup>♭</sup>.
2. C<sup>♯</sup> - D: best practice is to hold the C<sup>♯</sup> fingering LH2 (+ LSK1) and trill to LSK2. Tuning slightly problematic on D (sharp). Also, the D-B transition following trill for example ex 1a or 1b requires special consideration if D is played in this way.
3. C - D<sup>♭</sup>: Trill to LSK 1 while holding standard front C fingering.
4. D<sup>♭</sup> - Eb: trill to RSK1 while holding the D<sup>♭</sup> fingering.
5. C<sup>♯</sup> - D<sup>♯</sup>: there are 2 options here, first if LSK1+2 are used for D<sup>♯</sup> the accurate trill to C<sup>♯</sup> is easily facilitated. If the longer fingering is used for D<sup>♯</sup>, best practice is to keep LH fingers down while trilling to C<sup>♯</sup>. Given that the better option for D<sup>♯</sup> - E trill uses long fingerings, the best combination for consecutive trills is often long for D<sup>♯</sup> - E and side for C<sup>♯</sup> - D<sup>♯</sup>, that is change fingering halfway through the execution of the element. This requires individual considered practice.
6. D - E<sup>♭</sup>: To use the regular D fingering here in the requires a technically unusual swapping of the RH ring finger with the pinkie. A better option is to use LSK2 for the D and trill to the listed E<sup>♭</sup> fingering.



7. Trills to and from G<sup>+</sup>: using the simple modification method of raising the G# bumper allows for fluid performance of trills and idiomatic ornaments. To trill from G<sup>+</sup> - A, the G<sup>+</sup> fingering is held (holding RH2 down) while LH3 (ring finger) is trilled. This movement is not native to 12-tone technique and requires development of muscle memory. The trill from F# - G<sup>+</sup> is simply achieved by trilling the G# key, LH pinkie.

### 9.3 Drills and exercises

A technique I used to great effect when I first started learning to improvise in the line of the American jazz tradition was the identification and practice of “licks” (melodic phrases) in all 12 keys. Many jazz players, myself included, accumulate a collection of these “licks” during various stages of development for aural and kinaesthetic training. This process also contributes to the development of technique and fluency in the melodic navigation of sets of chord changes in all key centres. I derived my “jazz licks” either from a technical approach to navigating a melodic line through a specific intervallic or harmonic context, or from particular phrases identified during transcription.

It was an intuitive step for me to apply the same methodology to development of technical fluency and melodic approach in the *maqām* context. During my formative practice, I identified melodic fragments that were either pleasant or idiomatic turns of phrase, technically challenging or otherwise noteworthy, and isolated many of these for rigorous practice in all relevant keys<sup>10</sup>. I also borrowed exemplar phrases and melodic fragments from repertoire and practiced them in a similar fashion. In this way I compiled (and continue to build) a set of Arabic music “licks” for comprehensive technical development and to drive the evolution of my contextual melodic idiolect. Figure 9 presents a representative small sample of some drills, compositional examples<sup>11</sup> and repertoire extracts I have identified and adapted into my practice, specifically pertaining to *maqām bayātī*.

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<sup>10</sup> The 8 relevant keys identified for Arabic music performance on saxophone described in section 4.6 as a priority, later or concurrently the remaining 4 keys for comprehensiveness and application to intercultural music-making not bounded by the restrictions of the traditional context.

<sup>11</sup> Key creative output composition *Safe Haven* was included in the final recital, refer to Appendix VI.

2

Jins Bayati digital training  
for testing and training transitions in all appropriate keys

Ex. 1a



Ex. 1b



Ex. 2



Ex. 3 - *Safe Haven* Riff #1 (Vandegraaff, 2016)



Ex. 4 - *Safe Haven* Riff #2 (Vandegraaff, 2016)



Ex. 5 - Wisam Khassaf Bayati (all 12 keys) phrase



Repertoire Extracts

1. Hizzi ya Nawa3em (Atrache, 1974)



2. Digg el mahabij (Rahbani, 1975)



Figure 10: Drills, compositional examples and repertoire extracts

(Atrache 1974, Rahbani 1975, Vandegraaff 2016)

[Wisam Bayati Lick  
all 12 keys.mp4](#)

**A.V. Table 2**

[Safe Haven  
extract.mp3](#)

**A.V. Table 3**

[Hezzi Ya Nawa3em  
extract.mp3](#)

**A.V. Table 4**

[Diggu L Mahabij  
End.mp3](#)

**A.V. Table 5**

## 10. Integration

The final stage of this process involves the integration of all elements into my overall performance conception. The aim is to seamlessly incorporate conceptual, technical and aesthetic elements into my musical idiolect to the point where it becomes automatic: that is, beyond the point of conscious intention. Given that my preferred approach is a singing conception, this means my aim is to “sing” through the instrument with an integrated musical conception, unimpaired by technical or mechanical obstacles. While this is an ongoing process, the efforts I have taken to achieve this level of integration include:

- the intentional allotment of time to practise *taqāsīm*;
- repertoire performance in professional musical settings, including *taqāsīm*;
- composition, arrangement and performance of new repertoire;
- engagement in creative collaborations;
- recording and review: practise, live performance and in studios.

The ultimate praxis of *maqām* is *taqāsīm* (Ederer 2011). By intentionally making time in practise for *taqāsīm* (as well as aural, technical, transcription, composition and other repertoire development), the aim is to elevate my execution to the level that technique is no impediment to my statement of the enriched melodies (improvised and pre-composed) I continue to develop through the incorporation of *maqām*-derived microtonality. It is during my practise of *taqāsīm* outside of professional performances where I continue to explore and develop my concept of modal modulation. This includes finding points of intersection between *maqāmāt*, and merging elements derived from *taqāsīm* with my existing improvisational approach to enrich my overall conception. This process is continuously informed by consultation with expert practitioners and tutors.

I have developed and continue to foster professional relationships and performance opportunities in traditional and intercultural Arabic music settings with the highest calibre of Sydney-based performers of Arabic music and its derivatives. [Appendix IV](#) contains information on my musical involvements and collaborations relevant to this endeavour.

During this research period, my focus has been more on performance considerations than composition. However, I maintain and will continue to develop a substantial strand of activity in composition and the collaborative production of new performance pieces aimed at developing and extending my penetration into the intercultural *maqām*-derived domain. I have recently collaborated with my Arabic music tutor Adnan Baraké in the composition and adaptation of original *maqām*-derived performance pieces (see appendices VI and VII for critical notes for the final performance recital and score for *Madad*). As well as developing my own process, these endeavours are aimed at generating, maintaining and developing collaborative performance opportunities for my colleagues from Arab and non-Arab backgrounds.

Recordings of individual and group practice, rehearsals, performances and in professional studios were made throughout the process and the analysis of them has been core to the refinement of my process and the resultant creative output. In particular, during mid-2016 we recorded 10 tracks with *Masha's Legacy*, released as the album *Safe Haven* in January 2017 (Vandegraaff 2016).

## 11. Conclusion

My original impetus for engaging with this field was to equip myself with the necessary tools to communicate musically in a culturally informed fashion with Arabic musicians, without imposing my set of cultural values. I felt by making efforts to understand and develop key competencies related to the conceptual firmament in which Arabic musicians engaged, that I would avoid skewing or limiting the extent and/or impact of any creative output produced in such intercultural collaborative endeavours. The concept of *tārāb* defined why I wanted to get involved: the music communicated to me in an emotionally connecting way that transcended cultural attachments.

Initially, my process involved the direction of my attention into the conceptual context of Arabic music: learning core theoretical and foundational information. This was for me very much an aural process based on exposure through listening and experience, further informed through reading and conversation.

Learning to produce the new notes (quarter-tones) was akin to learning a new alphabet, requiring the development of supplementary aural skills and incorporating considerations such as production, intonation, inflection and variations. This involved personal investigation of my instrument, consultation of the technical information (relevant to saxophone) produced by my forebears, significant problem-solving, and verification in consultation with expert aides and tutors.

The third stage, activation, was like learning to communicate in language, starting with the basics. Short phrases became musical sentences, and progressed until I could authentically participate in the performance of increasingly sophisticated extemporised set repertoire. I maintained throughout a focus on learning the sort of embellishments and turns of phrase that could make my audience and fellow musicians smile or sigh. This was the beginning of my actualisation as a performer with *tārāb*.

I still aspire to the final stage, in which I hope to have a thorough understanding of the idiom and all its nuances, have control of all technical elements, and have integrated all considerations into a fully formed expressive idiolect. I intend to continue to participate in the composition and performance of new *maqām*-derived intercultural music, allowing space for collaborators from a diversity of backgrounds to contribute their own unique sets of skills and understandings. Ultimately,

I aim to express (improvise) freely in an enriched communicative environment, unimpaired by technical or conceptual obstacles. I feel that through this research, I have equipped myself with the necessary information, techniques and methodology for unlimited development in this field. The critical notes for the creative output component of this Masters programme is attached as Appendix VI and represents a holistic set of performance capabilities developed through this study.

My research has uncovered some functional deficiencies in key areas, and raised numerous academically meritorious questions for further research. A fundamental stage in the communication of musical ideas is the ability to produce accurate scores. Some widely used software packages are not appropriately equipped to graphically represent quarter-tones or key signatures, and are limited in their playback functions.

Other future research questions relate to the representation of Arabic music in Australian music education and obstacles non-Arab musicians may encounter when required to perform *maqām*-derived music including aural proficiency. This study deals with the fundamentals of musical communication, namely the individual expressive entity of tones on the harmonic spectrum, and has raised for me numerous questions related to the fidelity and specificity of musical communication. The body of harmonic and melodic information encoded within 24-tone chromaticism (and other tuning systems) could be more systematically investigated, clearly defined and potentially incorporated into more mainstream composition and performance practice.

## APPENDIX I: *Maqāmāt* and note names referred to in this study

(Effat 2005, Farraj 2007)

Most common forms of *maqāmāt* are shown. Variations in the upper *ajnas* (usually tetrachord) are common, including microtonal variations.

Rast



Bayātī



Ḥusaynī (from Re/Dūkāh)



Bayātī Šūrī



Šābā



Kūrd



Hijāz



Sīkāh (Sīkāh-Rast)



Sīkāh (Sīkāh-Nahawand)



Huzam





Jihār kāh



Nahāwand (Nawa)



Nahāwand (Rast)



°ajam



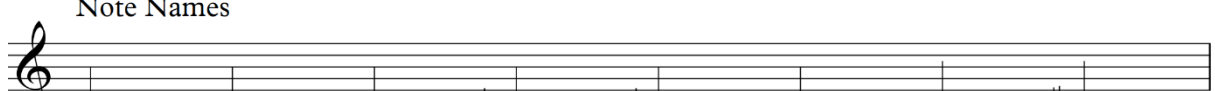
Nikrīz



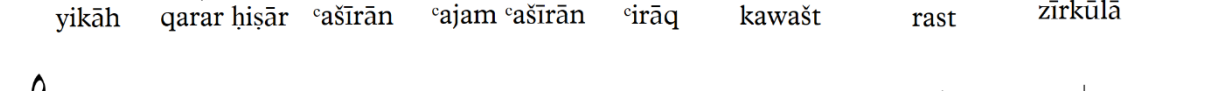
°irāq



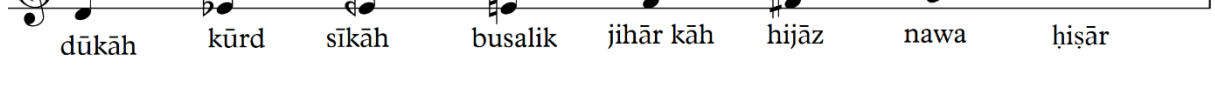
Note Names



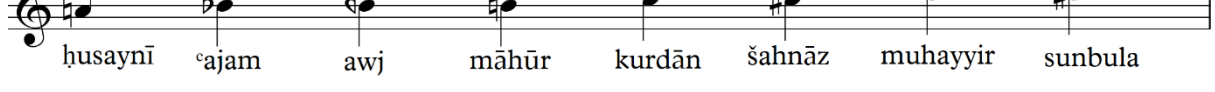
yikāh qarar ḥiṣār °ašīrān °ajam °ašīrān °irāq kawašt rast zīrkūlā



dūkāh kūrđ sīkāh busalik jihār kāh hijāz nawa ḥiṣār



ḥusaynī °ajam awj mājūr kurdān šahnāz muhayyir sunbula



buzurk jawāb busalik mājūrān jawāb hijāz sahm

## APPENDIX II: Selected recordings and discography

Ensemble/ performer	Album title	First name	year	Track title (where relevant)	Medium	Location	Label
Abou-Khalil, R.	Bukra	Rabih	1989		CD	Germany	MMP
Abou-Khalil, R.	Nafas	Rabih	1988		CD	Germany	ECM
Abou-Khalil, R.	Tarab	Rabih	1993		CD	Germany	ENJA
<i>al-Firqa al-Māsiya</i> *	<b>Significant body of work</b>						
al-Sayed, N.	Middle Eastern Sax		2011	Abou Ali Nabil	iTunes	Egypt	Forminx
Atzmon, G.	Exile	Gilad	2003		CD	Germany	ENJA
Baki, G. A.	Communique #2	Ghazi Abd'el	2007		CD	Germany	Forward Music
Bedair, R.	Sahara Reflections	Reda	2007	Desert Silence	Spotify	Egypt	Mosiqqa
Bedair, R.		Reda		Set al Habayeb	youtube.com	Egypt	
Brahem, A.	Thimar	Anouar	1998		CD	Germany	ECM
Brahem, A.	Astrakan Café	Anouar	2000		CD	Germany	ECM
Brahem, A.	Le Pas du Chat Noir	Anouar	2002		CD	Germany	ECM
Brahem, A.	Conte de l'Incroyable Amour	Anouar	1992		CD	Germany	ECM
Bustan Abraham	Bustan Abraham		1992		CD	Israel	NADA
Bustan Abraham	Pictures through the painted window		1994		CD	Israel	NADA
Bustan Abraham	Abadai		1996		CD	Israel	NADA
Bustan Abraham	Fanar		1997		CD	Israel	NADA
Bustan Abraham	Hamsa,		2000		CD	Israel	NADA
Cairo Jazz Band, The	Egyptian Jazz	Salah Rageb	2006		Spotify	UK	Art Yard
Chisholm, H.	Small Holes in the Silence	Hayden	2015		CD	New Zealand	Rattle Jazz
Chisholm, H.	Breve	Hayden	2015		CD	Germany	Pirouet

Effat, M.	<a href="http://www.youtube.com/watch?v=mW9xxoMDswc">www.youtube.com/watch?v=mW9xxoMDswc</a>	Mahmoud		Maqam Saba	youtube.com	Egypt	
Effat, M.	Ashek el-Nay	Mahmoud	1985		CD	Egypt	Soutelphan
el-Atrache, F.	The Best of Farid el-Atrache vol 1	Farid	1972		L.P.	Egypt	
<b>el-Atrache, F.*</b>	<b>Significant body of work</b>	Farid					
<b>Fairuz*</b>	<b>Significant body of work</b>	<b>Rahbani Brothers*</b>					
Farroukh, T.	Drab Zeen	Toufic	2002		CD	France	Le Chant du Monde
Farroukh, T.	Little Secrets	Toufic	1998		CD	France	Silex
Farroukh, T.	Cinema Beyrouth	Toufic	2012		CD	France	Forward Music
Garbarek, J.	Madar	Jan	1994		CD	Germany	ECM
Garcia-Fons, R.	Oriental Bass	Renaud	1998		CD	Germany	ENJA
Garcia-Fons, R.	Navigatore	Renaud	2001		CD	Germany	Cézame Carte Blanche
Garcia-Fons, R.	La Línea Del Sur	Renaud	2009		CD	Germany	ENJA
Hafez, A. H.	<a href="https://www.youtube.com/watch?v=-RHgvrG69iU">https://www.youtube.com/watch?v=-RHgvrG69iU</a>	Abd'el Halim		Gana el Hawa	youtube.com	Egypt	
<b>Hafez, A. H.*</b>	<b>Significant body of work</b>	<b>Abd'el Halim</b>					
Kawala, I.		Ibrahim					
Kelani, R.	Sprinting Gazelle	Reem	2005		CD	UK	Fuse Records
Khassaf, W.		Wisam					
Laco Tayfa	Bergama Gaydasi		2000		CD	Turkey	Doublemoon
Layali El Sharq Ensemble	Egyptian Baladi Live		1990	Afrah Baladi Feat. Mostafa Sax	CD	UK	Ind.
Les Musiciens Du Nil	Charcoal Gypsies		1996		CD	Germany	Piranha
Maalouf, I.	Diasporas	Ibrahim	2007		Spotify		

Maalouf, I.	Diachronism	Ibrahim	2009		Spotify	France	Mi'ster Productions
Maalouf, I.	Diagnostic	Ibrahim	2011		Spotify	France	
Maalouf, I.	Wind	Ibrahim	2012		Spotify	France	
Maksoud, M.		Mohamed					
Malik, A. A.	Sahara Jazz	Ahmed Abdel	1958		LP	USA	Riverside
Mariano, C.	Nassim	Charlie	1998		CD	Germany	Off the Wall
Masha's Legacy	Safe Haven	Stuart Vandegraaff	2016		CD	Australia	Ind
Murkus, A	Amal	Amal	1998		CD	Israel	Hemisphere Records
Murkus, A	Nana ya Nana	Amal	2007		CD	Israel	
Murkus, A	Shawq	Amal	2004		CD	Israel	
Night Ark	Treasures		2000		CD	USA	Traditional Crossroads
Puschnig, W.	Odem	Wolfgang	2005		CD	Russia	Par Media
Racy, A. J.	Ancient Egypt	Ali Jihad	1979		CD	USA	Lyrichord
Racy, A. J.	Ali Jihad Racy - Simon Shaheen – Taqasim: Improvisation In Arabic Music	Ali Jihad			CD	USA	Lyrichord
Rahbani, Z.	Bil afrah - بالأفراح	Ziad	1977		CD	Lebanon	Voix De L'Orient
Rahbani, Z.	Oriental Jazz Concert Live At Buc, Irwin Hall	Ziad	1986		Album	Lebanon	Aprodisco
Rajoub, B.	The Queen of Turquoise	Basel	2016		CD	Italy	Ragdoll
Rajoub, B.	Khameer	Basel	2010		CD	Syria	Forward Music
<b>Ramzy, H.*</b>	<b>Significant body of work</b>	<b>Hossam</b>					

Ramzy, H.	The Best of Farid Al-Atrash	Hossam	1994		CD	UK	ARC
Ramzy, H.	The Best of Abdul Halim Hafez	Hossam	1994		CD	UK	ARC
Ramzy, H.	The Best of Oum Kalthoum	Hossam	1994		CD	UK	ARC
Ramzy, H.	The Best of Mohammed Abdul Wahab	Hossam	1994		CD	UK	ARC
Ramzy, H.	Alhamy	Hossam	1996		CD	UK	ARC
Robin, T.	Ces Vagues Que L'Amour Soulève	Thierry "Titi"	2005		CD	France	Naive
Rouhana, C.	The Music of Charbel Rouhana	Charbel	2015		CD	Lebanon	Forward
Rouhana, C.	Selemet	Charbel	1997		CD	Lebanon	Voix de L'Orient
S. Shaheen and Qantara	Blue Flame	Simon	2001		CD	USA	Ark 21 Records
Saba, B.		Bassam					
<b>Sabah*</b>	<b>Significant body of work</b>						
Salamat meets Les Musiciens Du Nil	Salam Delta		1995		CD	Germany	Piranha
Shaheen, S.	Saltanah	Simon	1997		CD	USA	Water Lily Acoustics WLA512
Shaheen, S.	Turath	Simon	1992		CD	USA	CMP Records, CMP30062
Sharkiat	Camel Dance		1991		CD	Switzerland	Face Music
Srouf, S.*	Ashik al-Sax عاشق الساكس	Samir	1998		CD	Egypt	Free Music
Taksim Trio	Taksim Trio 2		2013		Spotify	Turkey	Dokuz Sekiz Müzik

Taksim Trio	Taksim Trio		2007		CD	Turkey	Doublemoon
Tawadros, J.	Chameleons of the White Shadow	Joseph	2013		CD	Australia	ABC
Tawadros, J.	The Prophet	Joseph	2009		CD	Australia	JT
Tawadros, J.	Concerto of the Greater Sea	Joseph	2012		CD	Australia	JT
Tawadros, J.	Angel	Joseph	2008		CD	Australia	JT
<b>Tekbilek, O. F. *</b>	<b>Significant body of work</b>	<b>Omar Faruk</b>					
Trio Joubran	Majâz		2007		CD	UAE	Randana
Trio Joubran	The First 10 Years		2013		CD	France	World Village
<b>Umm Kulthûm*</b>	<b>Significant body of work</b>						
Wahab, M. A. feat. Srour, S.	<a href="http://www.youtube.com/watch?v=Y1Pr0KPeQio">www.youtube.com/watch?v=Y1Pr0KPeQio</a>	Mohammed Abd'el		<i>Alf Layla wa Layla</i>	youtube.com		
<b>Wahab, M. A.*</b>	<b>Significant body of work</b>	<b>Mohammed Abd'el</b>					
<b>Warda al-Jadaida*</b>	<b>Significant body of work</b>						
Yair Dalal and the Al Ol Ensemble	Silan	Yair	1998		CD	Italy	Amiata
Youssef, D.	Birds Requiem	Dhafer	2013		CD	Germany	Okeh
Youssef, D.	Malak	Dhafer	1999		CD	Germany	ENJA
Youssef, D.	Electric Sufi	Dhafer	2001		CD	Germany	ENJA
Youssef, D.	Digital Prophecy	Dhafer	2003		CD	Germany	ENJA
Youssef, D.	Divine Shadows	Dhafer	2006		CD	Germany	Jazzland

\* Recordings listed for artists marked with asterisk are representative only, the sheer extent of available recorded material is impractical to publish here. Each of these artists represents a significant body of recorded work and legacy within their idiom.

### APPENDIX III: Arabic repertoire transcribed and performed during this study

Title	Performer/Composer	Maqām	Performed With
3ala Babi Wa2ef Amaren	Melhem Barakat	Hijaz	Masha's Legacy, AAC
3l Nadda	Sabah	Hijaz	AAC
Aatini Nay Wa Ghanni	Fairuz/Rahbani Bros	Nahawand	AAC
Abd'el Qadar	Cheb Khaled	Nahawand	AAC
Afrah Baladi	Mostafa Sax	Bayati	The Stars Orchestra
Ah Ya Zein	Trad.	Hijaz	Masha's Legacy
Ahibbak	Samira Toufic	Nahawand	AAC
Al Laylaki	Abd El Halim Hafez	'Iraq	AAC
Alf Layla Wa Layla	Mohammed Abd'el Wahab/Umm Kulthum	Nahawand	Masha's Legacy
Ana Fintizarak	Umm Kalthoum	Hijaz	Workshop
Ana Kul Ma Qul Ettoba	Abd'el Halim Hafez	Hijaz	AAC
Arji3i Ya Alfa Layla	Fairuz	Kurd	AAC
Ayni Bitriff	Karem Mahmoud	Sikah	AAC
Aziza	Mohammed Abdel Wahab		Workshop
B3ad Kuntum	M. Abdo	Rast	AAC
Ba3atilak Ya Habib El Rouh	Fairuz	Hijaz	AAC
Ba3d Annak	Umm Kalthoum	Bayati	Workshop
Baghillu Ya Qamaru	Fairuz	<sup>c</sup> ajam	AAC
Betwannes Beek	Warda	Nahawand	Masha's Legacy
Bhebak Ma Baaref	Fairuz	Nahawand	AAC
Bint El Shalabiyya	Fairuz	Nahawand	AAC
Bitwannes Beek	Warda	Nahawand	Workshop
Dakhel 3yunik Hakina	Sabah	Bayati	AAC
Desert Silence	Reda Bedair	Hijaz	Personal Transcription
Diggu El Mahabij	Fairuz	Sikah	AAC
Dizzani	Iraqi Trad.	Kurd	AAC
Dur Biha	Moroccan Trad.	Ajam/Jiharkah	AAC
El Hali Taabani	Ziad Rahbani	Sika Huzam	AAC
El Hilwa Di	Trad.	Hijaz	Masha's Legacy
Enta Mein	Umm Kalthoum		Workshop
Enta Omri	Umm Kalthoum	Nahawand	Workshop
Faye Ya Hawa	Fairuz	Bayati	AAC
Fi Leylika Essari	Majida El Roumi	Nahawand	AAC
Fog Ghosnik Ya Lamouna	Farid El-Atrache	Jiharkah/Ajam	AAC
Gafnahu Allam Al-Ghazal		<sup>c</sup> ajam	AAC
Gana El Hawa	Abd'el Halim Hafez		The Stars Orchestra
Habibi Ya Nour Al'ain	Amr Diab	Nahawand	AAC
Hal 3ala L Astar	Trad.	Bayati	AAC
Hasad An-Noor	Mahmoud Effat	Bayati	Personal Transcription
Hatwat Habibi		Hijaz	Masha's Legacy
Hezzi Ya Nawa3em	Issam Rajji	Bayati	AAC
Hobbak Ballor	Adnaan Baraké		AAC
Hulum	Arr. Amal Murkus	Nahawand	Masha's Legacy
Imani Sati	Fairuz	<sup>c</sup> ajam	AAC
Inta Min	Mohammed Rushdie	Bayati	AAC
Iza Kana Zanbi	Fairuz	Hijaz	AAC

Jayebli Salam	Fairuz/Rahbani Bros	Bayati	AAC
Lama Bada Yatathanna	Trad.	Nahawand	AAC/Masha's Legacy
Leesa Fakir	Umm Kalthoum		Workshop
Leylet Embareh		Sika Huzam	AAC
Leylet Hob	Umm Kalthoum	Nahawand	Workshop
Loulou Ya Loulou		Nahawand	AAC
Lylet Hob		Nahawand	Masha's Legacy
Maally Outilou		Hijaz	Workshop
Ma'is Al A3taf		Rahat Al Arwah	AAC
Mala Al Kasat		Rast	AAC
Malik Ya Helwa		Bayati	AAC
Marrauw 3alayya		Çajam	AAC
Mawoud	Abdel Halim Hafez		Workshop
Misirlou		Hijaz	AAC
Missaynakom		Rast	AAC
Nassam Alayna El Hawa		Kurd	AAC
Nay Taqasim	Uncredited	Bayati	Personal Transcription
Nehna Wei 'Amar		Nahawand	AAC
Noura Noura		Bayati	Masha's Legacy
Opa Shina Nay		Nahawand	AAC
Oud Taqsim	Riyadh Al-Sunbati		Personal Transcription
Oumi Ta Nor'os		Nahawand	AAC
Qadukka I Mayyas	Sabah Fakhri	Rast	AAC
Rij3it Layali Zeman	Fairuz	Kurd	AAC
Ruddani Ila Biladi		Çajam	AAC
Sa3idi Layleytna	Sabah	Sikah	AAC
Saarab	Simon Shaheen	Hijaz	Masha's Legacy
Salla Fina		Hijaz	AAC
Samra Ya Samra	Karim Mahmoud	Farhafsa	AAC
Sawah	Abdel Halim Hafez		Workshop
Selemet	Omar Faruk Tekbilek	Saba	Masha's Legacy
Shayef El Bahr	Fairuz	Çajam	AAC
Shiru Shir L'shalom	Rotblit/Rosenblum	Kurd	Masha's Legacy
Shlonek 3eyni		Bayati	AAC
Sidi Mansour	Saber Reba'i	Nahawand	AAC
Siseler	Turkish Trad.	Bayati	Masha's Legacy
Song Of The Pharaohs	Omar Faruk Tekbilek	Kurd/Nahawand	Masha's Legacy
Souher Zaki Fi Baladi	Mostafa Sax	Kurd	Personal Transcription
Tal Es Sahar		Bayati/Jiharkah	AAC
Tale3a Min Beyt Abouha		Çajam	AAC
Tamra Henna		Hijaz	Workshop
Taqsim Sabah	Mahmoud Effat	Sabah	Personal Transcription
Tarik Elnahel	Fairuz/Rahbani Bros	Kurd	AAC
Tel3et Ya Mahla Nourha	Fairuz/Rahbani Bros		AAC
Tigi Nesam El Amar	Walid Tawfik	Bayati	Workshop
Ya Eyn Moulayyitin (Shashkin)	Trad.	Bayati	AAC
Ya Gusna Naqa			AAC



Ya Laylou'l Sabbou	Fairuz/Rahbani Bros	Hijaz	AAC
Ya Louru Hubbukki		ajam	AAC
Ya Mali Elsham	Sabah Fakri	Rast	AAC
Ya Man Hawa		Nahawand	AAC
Ya Mayala Al Ghousoune	Fairuz/Rahbani Bros	Hijaz	AAC
Ya Oud		Hijaz	AAC
Ya Rayah			AAC
Ya Shad Al-Alhan		Rast	AAC
Ya Teyra Tiri		Bayati	AAC
Ya Wahid Al Ghid	Fairuz/Rahbani Bros	Sika Huzam	AAC
Yalla Tnam Rima	Trad.	Bayati	Masha's Legacy
Yelbaklik		Sikah	AAC
Zarani El Mahboub	Wadi Al Safi	Hijaz Kar	AAC
Zeina	Mohammed Abd'el Wahab	Nahawand	Masha's Legacy

## **APPENDIX IV: Relevant musical activities**

A critical part of my process of accumulation of core knowledge and practical experience relevant to this field is my ongoing engagement with performance and collaborative opportunities with expert Arabic musicians. A representative sample of recent professional activity that has contributed to this process is listed below.

### **1. Masha's Legacy**

*Masha's Legacy* is a contemporary intercultural performance ensemble of which I am co-director. Formed in 2009 and named for holocaust survivor, Masha Kleinzinger (my wife's late grandmother), our stated mission is to create and foster original inter-disciplinary and intercultural performance opportunities, particularly reuniting dance and live music. Working with peak musicians, dancers, designers and other creatives, the original performance pieces are co-composed for all artists to contribute on an equal basis. The repertoire is a mix of original, contemporary and folkloric material drawing from Arabic, Ladino, European classical, jazz, Hebrew, Andalusian and other performance traditions. The current membership represents a pluralistic diversity of performers including Coptic, Muslim, Jewish, Druse, Greek Orthodox and secular faith groups, from ethnic backgrounds including Australian, Egyptian, Kurdish, Syrian, Palestinian, Israeli and Iraqi. *Masha's Legacy's* critically acclaimed debut CD *Safe Haven* was released in 2017.

### **2. Andalus Arabic Choir**

Established in 2013, the Andalus Arabic Choir (AAC) is a not-for-profit community group made up of Arabic and non-Arabic members who share a common love of Arabic, particularly Andalusian music. Lebanese-born director Ghada Daher-Elmoway is an internationally celebrated musician and actress. The group performs throughout the year at festivals, concerts and community events, and the past three years have culminated in sold-out keynote performances at the Sydney Opera House. The 2015 event was the first ever concert of Arabic music at the iconic venue. It has been my honour to serve as the reeds player in the (professional) orchestra for the choir since mid-2015 and it has provided me with an ideal professional environment in which to develop my conception of Arabic music and performance skills on Arabic *nāy*.

### **3. Zela Margossian Quintet**

Zela Margossian is a Lebanese-born pianist of Armenian extraction. Initially a classical concert pianist, Zela has redefined herself in recent years as an ethno-jazz performer. I joined in collaboration with her in 2016, and we have performed at significant events locally and nationally, including at the 2017 International Women's Jazz festival. While Zela's compositions are grounded in 12-tone

chromaticism, the open harmonic structures allow me to explore *maqām*-derived microtonality in improvised solo sections.

#### **4. Middle-Eastern Dance (*Raqs Sharqi*) and other Arabic Music performance opportunities**

My initial introduction to Arabic music performance opportunities were presented through my wife, a professional *Raqs Sharqi* performer and choreographer. The ‘bellydance’ community continues to provide me with opportunities to perform with Arabic musicians of the highest calibre, at concerts, festivals, seminars and workshops. Terezka (Drznik)’s Academy of Danse Orientale (now under new management) held monthly live music classes, at which I was a frequently invited guest from 2010-2014. We hold an annual workshop series with Jrisi Jusakos’ *Hathor Dance Studio* at *Amera’s Palace*, aimed at enhancing the collaborative connection between dancers and musicians, as well as numerous one-off events throughout the year.

As my reputation as a saxophone and *nāy* player grows among the Arabic music and *tārāb* community, I increasingly receive professional invitations including for performances, teaching and speaking engagements at Arabic music concerts, workshops and seminars. My understanding of the Arabic tradition has also generated performance aptitudes and hence invitations to contribute in Turkish, Azerbaijani and Persian music events and concerts.

My experience with Arabic music and *maqāmāt* has enhanced my creative interactions with several performance projects and bands I have played with or with whom I have an ongoing involvement. These include Assyrian band *Azadoota*, Persian-based ‘Davood Tabrisi and the Far Seas’, and various Ottoman-influenced Gypsy (Rroma) groups.

An interesting ongoing project I joined in 2017 was assisting in the scoring and performance of music during development of an original musical called ‘One of a Kind’ composed by Judy Campbell and Aaron Robuck. Recounting a fictionalised story of a Jewish-Egyptian family evicted following WWII from Alexandria to Australia, the score is a mix of Egyptian and ‘Western’ music and called both for Arabic *nāy* and silver flute. My unique conceptual, performance and reading skills on both instrument (groups) not only enabled me to inform the composition and adaptation process, I was able to perform all woodwind parts from the same chair.

## APPENDIX V: Ethics approval documents



Research Integrity & Ethics Administration  
Human Research Ethics Committee

Thursday, 15 September 2016

Dr Simon Francis Barker  
Jazz Studies Unit; Sydney Conservatorium of Music  
Email: s.barker@sydney.edu.au

Dear Simon Francis

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

After consideration of your response to the comments raised your project has been approved.

Approval is granted for a period of four years from **15 September 2016 to 15 September 2020**

**Project title:** The Tarab Saxophone: Application of Arabic music concepts and techniques to performance on the saxophone

**Project no.:** 2016/659

**First Annual Report due:** 15 September 2017

**Authorised Personnel:** Barker Simon Francis; Vandegraaff Stuart;

#### Documents Approved:

Date Uploaded	Version number	Document Name
02/09/2016	Version 2	INTERVIEW QUESTIONS
02/09/2016	Version 2	SAFETY PROTOCOL
02/09/2016	Version 1	RECORDED INTERVIEW PROTOCOL
02/09/2016	Version 2	PARTICIPANT INFORMATION STATEMENT
02/09/2016	Version 1	FLOW CHART
06/07/2016	Version 1	PARTICIPANT CONSENT FORM
06/07/2016	Safety Protocol	FIELDWORK SAFETY PLAN
06/07/2016	Version 1	PARTICIPANT CONTACT EMAIL

#### Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).

Research Integrity & Ethics Administration  
Level 2, Margaret Telfer Building (K07)  
The University of Sydney  
NSW 2006 Australia

T +61 2 9036 9161  
E human.ethics@sydney.edu.au  
W sydney.edu.au/ethics

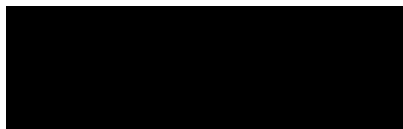
ABN 15 211 513 464  
CRICOS 00026A

- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.
- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.
- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.
- The Ethics Office may conduct audits on approved projects.
- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely



Professor Glen Davis  
Chair  
Human Research Ethics Committee

**The University of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007) and the NHMRC's Australian Code for the Responsible Conduct of Research (2007).**

## APPENDIX VI: Creative Output - Recital Program Critical Notes

### The *Tārāb* Saxophone:

The development of a comprehensive culturally informed approach  
to the performance on the saxophone  
of music derived from Arabic *maqāmāt*.

Final Recital

Critical notes

STUART VANDEGRAAFF



THE UNIVERSITY OF  
SYDNEY

S.I.D. 460312428

6:30pm, Monday 22 Jan 2018

Sydney Conservatorium of Music

Recital Hall East

### The performers

Stuart Vandegraaff	alto and soprano saxophone, <i>nāy dūkāh</i> and <i>nawa</i>
Adnan Barake	<i>ūd</i>
Mohammed Lelo	<i>qānūn</i>
Adem Yilmaz	percussion
James Tawadros	percussion
Elsen Price	double bass
Nicholas Southcott	piano
Zela Margossian	piano

### The compositions

1. Traditional <i>muwashahat</i> medley	<i>Salla Fina al-Lahza</i> and <i>Ya Wahid al Ghid</i>
2. Baligh Hamdi (1931-1993)	<i>Alf Layla wa Layla</i> (1001 Nights)
3. Yair Rosenblum (1944-1996)	<i>Shir LaShalom</i>
4. Adnan Barake (1977- )	<i>Madad</i>
5. Zela Margossian (1980- )	<i>Aleeq</i>
6. Stuart Vandegraaff (1974- )	Safe Haven

### Index of Arabic terms

*Maqām* (pl. *maqāmāt*): Exclusively heptatonic modes used as the basis for Arabic music including compositions and improvisations featuring a predetermined intervallic structure and set of modulation tendencies. A list of *maqāmāt* used in the compositions performed is attached as an [appendix](#).

*Taqṣīm* (pl. *Taqṣīīm*): an improvised musical exploration of a *maqām* and its modulation tendencies.

*Jins* (pl. *Ajnās*): lit. “sets” three-, four- or five-note “building blocks” of *maqāmāt*.

*Tarāb*: music performed with the intention of inspiring an emotionally heightened state (ecstatic, rapturous or enchanted (Shannon 2003b)) in the performers and the audience, and the engagement with the production and culture of such music.

*Nāy* (ناي) (pl. *nāyāt*): the Arabic end-blown flute made from *Arundo donax* (giant Nile reed cane), featuring six finger holes and a thumb hole, blown with a bilabial embouchure.

*ūd* (عود): short-necked Arabic lute, precursor of the lute.

*Qānūn* (قانون): lit. “master”, the Arabic lap zither.

## Introduction

The purpose of this research project was to equip myself with skills required to engage in a culturally informed way with Arabic music in traditional and intercultural performance settings. When professional opportunities involving performance of Arabic music presented themselves to me, I found I lacked skill in key areas required to perform satisfactorily in the idiom.

Arabic music is predominantly modal, and most modes, or *maqāmāt* (singular *maqām*) contain tones microtonal to the 12-tone chromatic system (Touma 1996). Theoretically, these tones are evenly tempered quarter-tones (Maalouf 2003, Ghrab 2005), however regional and contextual variations are widespread (Marcus 1993). In context, the quarter-tone interval is almost entirely absent from the Arabic performance tradition: the interval of a “median second” or three-quarter tone, placed exactly between a major second and minor second, is most frequently encountered.

My formative and professional musical development has operated predominantly within the 12-tone chromatic system. It was specifically the widespread and fundamental use of tones and intervals in Arabic music not present in the 12-tone chromatic system that proved challenging for me, for three critical reasons:

1. Aural skills: my development of specific and exclusive hearing perception skills related to 12-tone chromaticism proved problematic. I needed to supplement the aural skills I had acquired and refined during my professional career to perceive, accept and accurately quantify microtones specific to the Arabic music conception;
2. Technical skills: the production of microtones specific to Arabic music on the saxophone required me to develop a range of solutions for production of the tones and subsequent incorporation into my technique; and
3. Contextual conception: I needed to accumulate core knowledge related to the Arabic music system, to understand the context in which all tones were employed, and to enable me to perform more credibly with greater authority.

Moreover, beyond technical issues related to microtonality, I wanted to enhance my playing by incorporating aesthetic considerations such as idiomatic, tonal and ornamental elements, and develop an approach to *taqāsīm* (improvisations). I continue to investigate whether the fidelity and specificity of my musical communications can be enhanced through the incorporation of microtonality. I wanted to know if the saxophone was an appropriate instrument choice for all Arabic music performance situations, and to understand any limitations there were to its adaptation in the idiom. I aimed to develop a comprehensive set of solutions and skills, and to incorporate solutions into my technique before they were required for specific performance outcomes.

Many of the challenges I encountered were a result of a combination of my circumstantial and ethnic background. As an Australian of Celtic-Dutch extraction, Arabic music was not “in my blood” and represented only a tiny fraction of my music exposure in Australia. My circumstances as a mature performer with established sets of technical skills and performance capabilities has subsequently



meant that most of my development in Arabic music is the result of retraining, augmenting or supplementing my existing skill sets, as opposed to the concurrent development of capabilities during a more formative stage. This was especially significant in my process of kinaesthetic retraining.

#### **Arabic *nāy***

My learning process was substantially informed and accelerated by studying the Arabic *nāy*<sup>1</sup>, which produces  $\frac{3}{4}$  tones in its most natural tone row. As an aerophone, I found the function of the *nāy* had the greatest application for adaptation to the saxophone compared with other Arabic melodic instruments<sup>2</sup>. Through learning the *nāy*, I formed a robust concept of *maqāmāt*, repertoire performance and *taqāsīm*, which I adapted to the saxophone.

#### ***Tārāb***

Entwined within the performance and engagement with the idiom of Arabic music is a concept of aesthetics and emotionality called *tārāb* (Racy 2003). While I have not systematically deconstructed and quantified constituent elements of *tārāb*<sup>3</sup>, it does incorporate hallmark performance elements including tonal and aesthetic considerations, phrasing, variation, melisma, extemporisation, and a sophisticated and subtly nuanced approach to *taqāsīm*.

I have found that my engagement with the philosophy of *tārāb* and consequential performance considerations have provided a specific set of contextual aspirational guidelines which have significantly directed my development within the idiom of Arabic music and its derivatives. Moreover, I have found within *tārāb* a set of principles through which I can inform and direct the evolution of my improvisation practice beyond the Arabic music context.

---

<sup>1</sup> The end-blown cane flute, more specifically a set of *nāyāt* (7 or more instruments).

<sup>2</sup> There is strong cross-applicability for the *mizmar* (*zurna*), particularly with the soprano saxophone. The alto saxophone can also adequately substitute for violin and piano-accordion.

<sup>3</sup> My feeling is that it might be at odds with the practice to approach *tārāb* in such a clinical way

### Rationale of this performance

The facets of this study I wish to demonstrate in this performance involve permutations of the macroscopic elements that have contributed to my accumulation of knowledge in the field. Specifically, there are two broad genres of music in which I wished to accumulate culturally informed performance skills: traditional and contemporary (intercultural) music. The instruments on which I accumulated these skills were *nāyāt* and saxophones.

My integrated musical conception does not segregate practice, composition, improvisation and performance: I see them as entwined sets of complementary skills. Therefore, it is most meaningful for me to demonstrate how I have adapted my conception and incorporated derived musical information in my own compositions and in the compositions of my musical contemporaries, as well as significant historical repertoire.

In summary, this study involves execution of precomposed extemporised repertoire and improvisation incorporating a contextually integrated 24-tone chromatic approach. I incorporated all these inputs into the following matrix, and derived a program of representative repertoire based on combinations derived from the matrix.

Genre		Instrument		
Traditional		Saxophone		Set parts (no <i>taqāsīm</i> )
		alto	soprano	
Contemporary intercultural		<i>nāy</i>		<i>taqāsīm</i>
My composition	Composition - other	<i>dūkāh</i>	<i>nawa</i>	

The combinations I have thus chosen to demonstrate in this recital are:

1. Traditional - *nāy dūkāh, nawa* and soprano saxophone - *Salla Fina/Ya Wahid al Ghid* - trad. *muwashahat* (no *taqāsīm*)
2. Traditional - alto saxophone - *Alf Layla wa Layla* - Baligh Hamdi (no *taqāsīm*)
3. Contemporary intercultural (other) - *nāy* - Shir LaShalom - Rotblit/Rosenblum (*taqāsīm*)
4. Contemporary intercultural (other) - alto saxophone - Madad - Adnan Barake (*taqāsīm*)
5. Contemporary intercultural (other) - soprano saxophone - Aleeq - Zela Margossian (improvised solo)
6. Contemporary intercultural (my composition) - alto saxophone - Safe Haven - (*taqāsīm* and solos)

## The Program

### 1. Traditional *muwashahat* medley **Salla Fina al-Lahza** (سَلِّ فِينَا اللَّحْظَ هِنْدِيًّا) and **Ya Wahid al Ghid** (يا وحيِد الغيد)

These compositions are from the Andalusian *nubah muwashahat* traditional repertoire. The *muwashahat* are also a genre of poems. The musical form is characterised by a greater diversity of *iqa'at* (rhythmic structures) than other Arabic forms (Shannon 2003a).

'*Salla Fina*' has a 17-beat rhythmic structure called *khush rank* (Farraj 2007) and is in *maqām hijāz* (*hijāz-rast*). '*Ya Wahid al Ghid*' has a 10-beat rhythmic pattern called *samai* and is in *maqām huzam*, curious in that it commences on the half-flat note *sikāh* and contains *jins hijāz*:

As a mark of deference and respect, this presentation commences with a *qānūn taqsīm* from Mohammed Lelo.

In this presentation my aim is to demonstrate a level of familiarity with the Arabic music tradition, and to demonstrate performance skills I have accumulated on *nāy* including the microtonality intrinsic to the Arabic music tradition. Both compositions feature the note *sikāh*, the original note through which I discovered the fingering analogy I adapted for saxophone. I will demonstrate the application of this crossover by performing the final refrain on soprano saxophone.

### 2. Baligh Hamdi (1931-1993) **Alf Layla wa Layla** (ألف ليلة و ليلة) **1001 Nights**

This is the instrumental introduction to one of Umm Kulthūm's most famous pieces, which remains a mainstay of performed repertoire throughout the Arabic music world (Danielson 1996). Originally recorded in 1969 with *al-Firqa al-Māsīya* (الفرقة الماسية) – The Diamond Band, the composition is noteworthy in that it features several solo sections for alto saxophone (Hamdi 1969). The saxophonist in this orchestra was Samir Srour, arguably the most famous Arabic saxophonist.

The final section features a passage in which the saxophonist is required to play the note G $\sharp$  (G half-sharp), problematic in that it is the only quarter-tone for which existing microtonal saxophone technical literature provides no fingering. My current solution for production of this note involves a minor modification of the instrument and was derived through mechanical investigation of my saxophones and in consultation with practitioners and instrument technicians.

The aim of this presentation is to demonstrate a level of familiarity with traditional Arabic repertoire on saxophone, including idiomatic and tonal considerations, and to demonstrate the contextual application of my current working solution to the production of G $\sharp$ .

### 3. Yair Rosenblum (1944-1996) **Shir LaShalom** (שיר לשלום) **Song of Peace**

This composition was originally performed by the Israeli Defence Force in 1969. To this day, it is an iconic anthem of the Israeli peace movement. Yitzhak Rabin had led the song at a peace rally in Tel Aviv on 4 November 1995 moments before his assassination. A blood-stained copy of the lyrics

written by Yaakov Rotblit (1945- ) Rabin had held at that rally has become a potent image representing the (as yet unfulfilled) yearning for peace in the Holy Lands.

In this original arrangement I have altered the melody from *maqām nahāwand* to *maqām kūrđ* (similar to Phrygian mode). I arranged the piece with reference to the orchestrations of *al-Firqa al-Māsīya*, in particular the compositions of Muhammad ‘Abd al-Wahhab (Azzam 1990), for my ensemble Masha’s Legacy. Our group features a diversity of Arab and non-Arab performers representing a range of religious and secular backgrounds, including Muslim, Jewish, Christian, Druse, Kurdish and others. Music, politics, culture and tradition are inextricably combined in our ensemble (Swedenburg 2004).

The aim here is to demonstrate my performance ability on *nāy nawa* in a contemporary context, including in ensemble, as a lead voice and in improvisation. During the instrumental *mawaal* (metered improvisation), I will explore the parent key (*maqām kūrđ*) as well as upper tetrachord (*jins*) variations incorporating microtonality by modal modulation techniques specific to the Arabic idiom.

#### **4. Adnan Barake (1977 - )                      Madad**

One beneficial aspect of my newly acquired technical and aesthetic capabilities on saxophone is in my ability to perform new compositions incorporating microtonality derived from *maqāmāt*. Adnan Barake composed and recorded ‘Madad’ in 2013 as a solo ‘*ūd*’ piece. We have spent six months adapting the composition for this duo presentation. Madad means ‘supply’, and is the name of a charity organisation in south Syria that hosted internally refugees from different regions within Syria displaced by the ongoing war.

The melodic structures for ‘Madad’ are derived exclusively from *maqāmāt*, particularly *maqām bayātī* in C and *maqām rast* in C, although it passes through many other modulations. Adnan has also explored compositional aspects enabled by the incorporation of evenly tempered (24-tone chromatic) microtonality, including microtonal vertical and horizontal harmonic structures, and counterpoint. The middle section of the composition also includes improvisations by both saxophone and ‘*ūd*’. Tonight’s performance is the debut of this newly adapted composition.

My aim here is to demonstrate how my specific study in this field has equipped me with conceptual, technical and aesthetic capabilities required to accurately perform heavily microtonal *maqām*-derived compositions written by others.

#### **5. Zela Margossian (1980 - )                      Aleeq**

One significant outcome I aimed to derive from my engagement with Arabic music was to incorporate specific elements into my broader music practice. Zela Margossian and I are both devotees of a globally representative form of hybrid music we refer to as global fusion or ethno-jazz. An Armenian who grew up in Beirut, Lebanon, Zela was trained and performed as a classical pianist until she chose to re-skill and redefine her performance representation.

'Aleeq' is composed predominantly in B-flat *hijaz* (*hijaz-nahawand* form) and the written melody does not incorporate microtonality. The piece features an improvised solo section for soprano saxophone over a B-flat pedal. In this section I aim to demonstrate my developing concept of *maqām* modulation including contextual microtonality on soprano saxophone.

#### **6. Stuart Vandegraaff (1974 - )      Safe Haven**

'Safe Haven' represents my response to the displacement and forced migration of people throughout the Arab world due to political instability, poverty and war.

The opening section (*taqsīm* and melody) is in *maqām bayātī*. *Bayātī* translates literally as "my home", and has been chosen for its emotional connection with a sense of place and belonging. Following the saxophone *taqsīm*, the 14/8 rhythmic structure (*iqa*) is introduced. The grouping here takes a diminishing form: 4:3:3:2:2, representing a sense of unease or urgency. This melodic section transitions into an open piano solo, representing the voyage. The piano then introduces the third section, representing arrival, in the Flamenco *buleria* rhythm. A direct Arabic historical connection is represented in the Spanish rhythm and scale (*maqām hijāz* or "Spanish Gypsy").

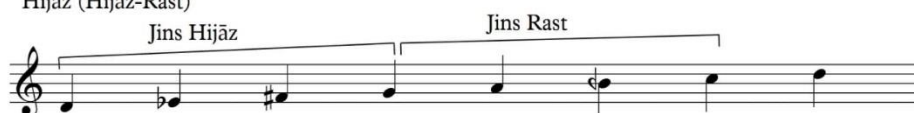
My aim is to demonstrate how I have assimilated information gained through my study of Arabic music into my performance idiolect, including in execution of set parts, in the composition process and in improvisation. It represents the culmination of praxis of skills I have acquired to this point.

*Thanks to the musicians, markers, academic staff, technicians and audience.*

**Appendix: *Maqāmāt* used in this performance**

All *maqāmāt* are illustrated here in parent key, not necessarily the key used in performance. *Maqāmāt* are defined by the lower *ajnas* and variations are permissible in the upper tones at the composer's or performer's discretion. Therefore, the most commonly used variants are depicted here. Improvisations will (most likely) also incorporate other *maqāmāt* not depicted here. The reversed flat sign refers to half-flat tones.

Hijāz (Hijāz-Rast)



Hijāz (Hijāz-Nahawand)



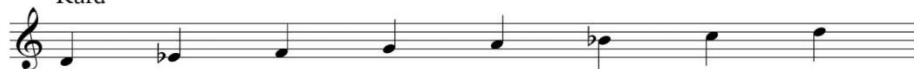
Huzam



Bayātī



Kūrd



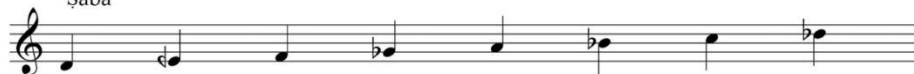
Nahāwand (Nawa)



Rast



Şābā



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# APPENDIX VII: Madad Alto Saxophone Score

Alto Sax

## Madad for oud and alto saxophone

Adnan Baraky

$\text{♩} = 132$

*mf*

5

9

13

18

22

26

30

34

**A**  $\text{♩} = 100$  *rit.*

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42  $\text{♩} = 69$   
*mf*

**B**  $\text{♩} = 88$  *rit.*  $\text{♩} = 72$

50  $(\text{♩} = \text{♩}) \text{♩} = 48$

**C** *mp*

59 *mf*

63

67 *mp*

**D**

75

79

E

Musical staff E, measures 83-86. The key signature is three sharps (F#, C#, G#). The music consists of a melodic line with eighth and quarter notes, some with slurs. The dynamic marking *mp* is present.

Musical staff E, measure 87. The staff is empty, indicating a rest.

Musical staff E, measure 91. The staff is empty, indicating a rest.

Musical staff E, measures 95-98. The staff is empty, indicating a rest. Time signatures 9/4 and 6/4 are indicated.

F

Musical staff F, measures 99-102. The key signature is three sharps. The music features a melodic line with slurs and a *rit.* marking. The dynamic marking *mp* is present.

Musical staff F, measures 103-105. The music features a complex rhythmic pattern with many sixteenth notes. A tempo marking  $\text{♩} = 36$  is present.

Musical staff F, measures 106-108. The music features a complex rhythmic pattern with many sixteenth notes and a triplet of eighth notes.

Musical staff F, measures 109-111. The music features a complex rhythmic pattern with many sixteenth notes.

Musical staff F, measures 112-115. The music features a complex rhythmic pattern with many sixteenth notes, a triplet, and an *accel.* marking. A tempo marking  $\text{♩} = 44$  is present. The dynamic marking *f* is present.

G

Musical staff G, measures 116-119. The music features a melodic line with slurs and a triplet.

118 *mp*

121 *mf*

124 *mf*

129 sax impro. oud impro. perc. impro.  $\text{♩} = 120$  O.R.

**H** *mf mp*

138 *p*

142 *p*

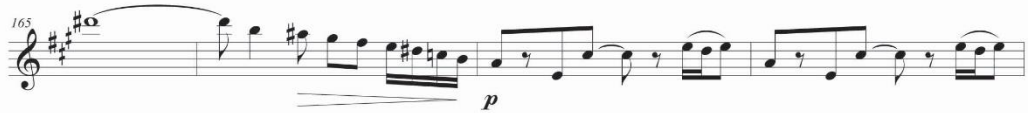
146 *p*

**I** *mf cantabile* 3

154 *p* 3

158  *mf*

162 

165  *p*

**J**  *mf*

173 

177 

181 

**K** *sudden rit.* *more rit.* ♩ = 88 

190 

193 *faster* 

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