University of Dundee

Report on the eighth international conference on computational creativity

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The Eighth International Conference on Computational Creativity (ICCC'17)[1] was hosted at the Georgia Institute of Technology in Atlanta, Georgia, USA from June 19th - June 23rd, 2017. The ICCC'17 organising committee consisted of Ashok Goel (General Chair), Kazjon Grace (Workshop Co-chair), Matthew Guzdial (Media Chair), Mikhail Jacob (Local Chair), Anna Jordanous (Program Co-chair), Ruli Manurung (Workshop Co-chair) and Alison Pease (Program Co-chair). This report summarises the main topics addressed.

Computational creativity (CC) is the art, science, philosophy and engineering of computational systems which, by taking on particular responsibilities, exhibit behaviours that unbiased observers would deem to be creative. As a field of research, this area is thriving, with progress in formalising what it means for software to be creative, along with many exciting and valuable applications of creative software in the sciences, the arts, literature, gaming and elsewhere. The ICCC conference series, organised by the Association for Computational Creativity[2] since 2010, is the only scientific conference that focuses on computational creativity alone and also covers all its aspects.

This was the third time the conference had been hosted in North America (Mexico City, ICCC'11; Park City, ICCC'15), and the higher proportion of North American delegates that this brought enriched the variety of talks and discussions. The Georgia Institute of Technology and local hosts provided extremely comfortable accommodation for everyone, furthering the traditional friendly and welcoming atmosphere of the conference.

Main Conference

Thirty four full papers were presented in a single track over three-and-a-half days, either as oral presentations, or posters and short talks, depending on the nature of the contribution. These were grouped by theme. A **foundations** session opened the conference with talks on application domains in CC, building a CC system and teaching CC. A **language** session followed, looking at linguistic creativity in narrative and poetry. State-of-the-art conceptual blending techniques and applications were presented in the session on **combinatorial creativity**. The **music** session built on a co-located workshop on music and CC, and presented talks on new techniques for automation of learning and cross-domain fertilisation in music generation. A succession of nine **short talks** introduced work on a wide variety of domains, elaborated in posters, including dance, music and narrative. **Co-creativity** was a popular theme in the conference, with work in this theme considering human-machine interactions and benefits in both directions. Finally, the session on **philosophical and psychological perspectives** closed the conference, with deep work on philosophical themes such as intentionality and self-awareness.

The first talk kicked off with an analysis of the field, highlighting the lack of papers on mathematical and scientific creativity: under-represented domains proved to be a recurring theme to the conference. Another theme was the need for widening participation in the CC community, engaging with related disciplines, with researchers from a wider variety of cultures and institutions, and with people working in industry. Social aspects of CC and ways in which CC can be used to improve lives was another important theme, kickstarted by organisers of the Workshop on Computational Creativity and Social Justice held immediately prior to the conference -- Gillian Smith, Dan Brown and Anne Sullivan (see the Workshop Report following). Discussions based on Tony Veale's popular tagline for ICCC'12 -- "Scoffing at mere generation for more than a decade", questioned whether "mere generation" is really so terrible -- in particular it can be a way of broadening appeal of and participation in CC events, and furthering industry engagement.

The keynote speakers

Doctor Milena Fisher, Co-Founder and President of The Creativity Post gave a keynote which in some ways picked up the baton from the first speaker,

emphasising the need for collaboration with other fields and disciplines: a theme which recurred in the panel sessions and throughout the conference.

Professor Gil Weinberg, from the School of Music Technology at Georgia Tech held everyone spellbound with his ventures through twenty years of truly inspiring work in musical creativity, including robot dancers, autonomous drummer collaborators and musically intelligent limbs for musicians with injured or missing limbs.

The panels

Two panels were held, on **Computational Creativity and Design** panel and **Computational Creativity and Discovery**. Panelists in the former stressed the importance of Design Interaction and HCI for CC, offering a set of practices and methodologies for crafting enjoyable interactive experiences, where interaction may be with other people, with technology or with objects. With an emphasis on co-creativity rather than autonomous machine creativity these complementary disciplines will be ever more relevant. New and recent models of human-computer co-creativity were raised, extending previous models of computer as nanny, penpal, coach, assistant and colleague. The *Discovery* panel discussed philosophical aspects of how exploration relates to discovery in terms of navigating a search space, and related topics of serendipity, intention, recognition and generation. The feeling was that discovery is a major part of the creative process that is getting somewhat overlooked and deserves more attention.

Prizes

ICCC 2017 gave several awards including the Best Paper Award and the Best Student Paper Award.

Tony Veale's paper *Déjà Vu All Over Again. On the Creative Value of Familiar Elements in the Telling of Original Tales* exploring how fictional characters can be re-used creatively in new contexts for ironic, comedic or surprising purposes won the Best Paper Award. This further added to the debate on generation versus evaluation in CC, by controversially arguing that a creative act can occur without generation. Runner-up Best Paper Award went to the first published advice on how to teach CC, by Margareta Ackerman, Ashok Goel, Colin Johnson, Anna Jordanous, León Carlos, Rafael Pérez Y Pérez, Hannu Toivonen and Dan Ventura - *Teaching Computational Creativity*.

Winner of the Best Student Paper Award went to Simo Linkola, Anna Kantosalo, Tomi Männistö and Hannu Toivonen for their model of computational metacreativity in *Aspects of Self-awareness: An Anatomy of Metacreative Systems*. Mason Bretan, Gil Weinberg and Larry Heck took the Runner-up Best Student Paper Award for their popular paper on *A Unit Selection Methodology for Music Generation using Deep Neural Networks*.

Satellite events

This conference included a record number of satellite events related to creativity and computers. Three workshops were held -- Musical Metacreation (MUME); Working on Computational Creativity and Games and Co-creation (CCGW); and Computational Creativity and Social Justice (CCSJ). Two tutorials -- Literary Creativity and Narrative Generation and Tweet Dreams Are Made Of This: Building Creative Twitterbots -- were also held, alongside a Doctoral Consortium.

Conclusion

The conference closed with a community meeting, and a healthy debate on future directions of the field. Widening participation in many areas was thought to be important -- online as well as offline, industrial as well as academic, in scientific fields as well as artistic arenas. It was announced that ICCC'18 will be held in Salamanca, Spain (June 25-June 29, 2018)[3], with the ceremonial Mexican shaker being passed along to the next Chair. ICCC'19 will be back in the USA.

With a new journal in the pipeline and an increasing number of satellite events and related conferences, a creative future looks hopeful. This will be enhanced by establishing links to industry to build on academic ideas, and by cementing new relationships with colleagues from under-represented countries and domains.

ICCC 2017 was sponsored by US National Science Foundation, Artificial Intelligence Journal, Georgia Institute of Technology, Georgia Tech GVU Center, and the Association for Computational Creativity.

For further information on ICCC'17, see www.computationalcreativity.net/iccc2017.

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