

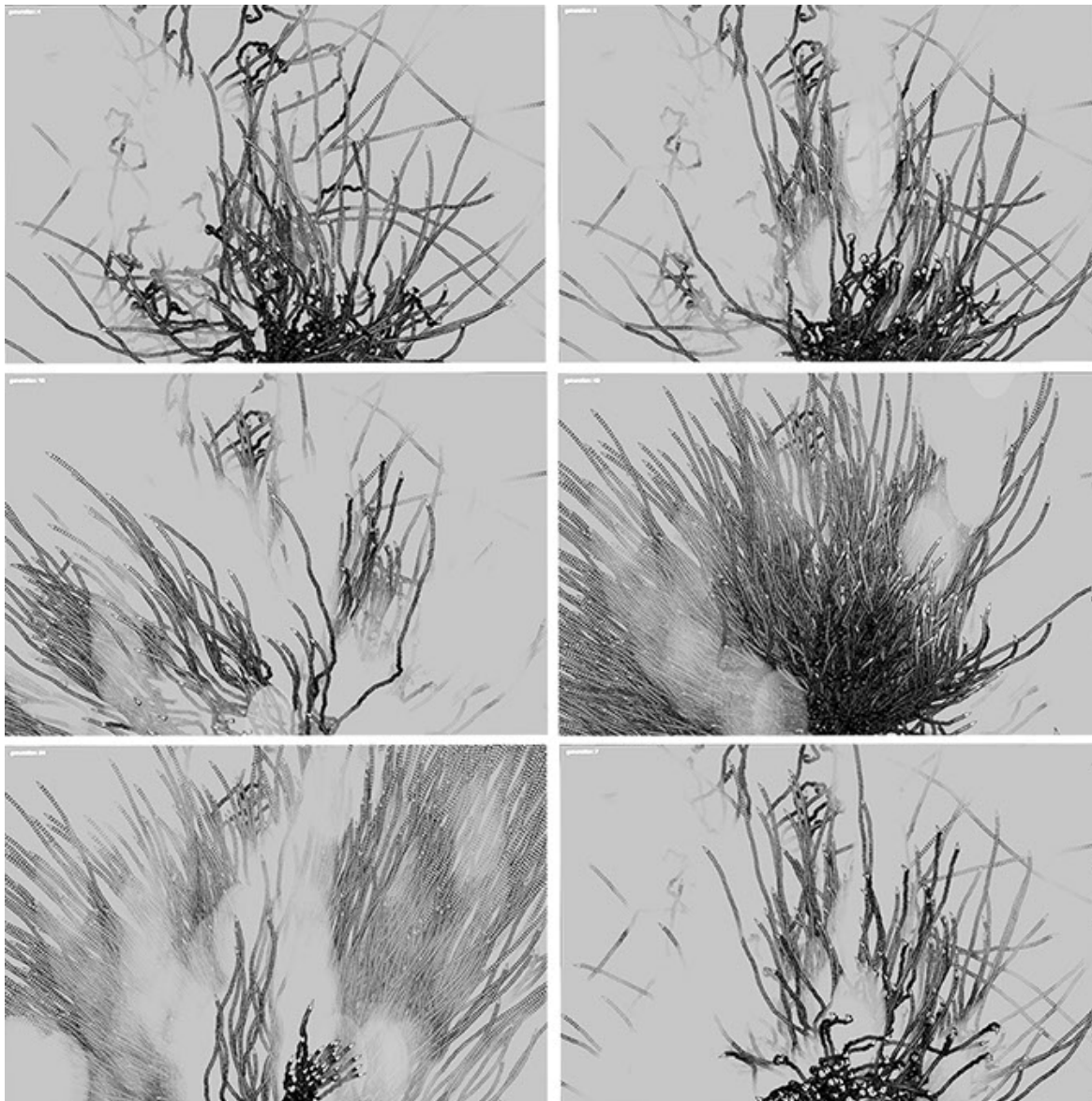
Computer Graphics, Imaging & Visualization

— New Techniques and Trends —

— CGiV 2016 —

Edited by

Ebad Banissi, Muhammad Sarfraz, and Muhammad Fakir



29 March–1 April 2016 • Beni Mellal City, Morocco

PROCEEDINGS

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Preface

Computer graphics, imaging and visualization (CGiV) combined are used in some form or shape in most applications in this age. New applications show strong trends from graphics, imaging, and visualization. There are exciting explorations of theories and applications to a wide range of disciplines including social media, geo-sociology, health, business, security and more. Statistical analysis of literature illustrates that the chasm between academia and industries is being abridged as applications become more innovative and drive new research activities.

The collection in this volume has the latest contributions from scientists, artists, and users from a cross section of disciplines in the area of computer graphics, imaging, and visualization. Though the classification is somewhat difficult because of the overlapping nature of the subject, there are three themes of graphics, imaging and visualisation running through this book. Chapters contribute towards different new techniques, applications, and tools within the theme of the book. The book is designed to have the best possible utility for researchers, computer scientists, practicing engineers, and many others around the globe. It will also be equally and extremely useful for graduate students in the areas of computer science, engineering, and other computational science disciplines.

Each contributor does indeed add a fresh view and thoughts, challenges our beliefs, and encourages further exploration and innovation. We are grateful to all for providing the opportunity to share their valuable work with the research and scientific community. These contributions will definitely prove to be an asset for future awareness.

This book has come out of the efforts of the annual international forum of CGiV 2016. We are deeply indebted to all of the contributors to this book as well as the reviewers for their patience and cogent reviews of submitted manuscripts.

Ebad Banissi, Muhammad Sarfraz, and Muhammad Fakir
Editors

Acknowledgments

We are deeply indebted to all the authors and contributors to this collection, all the reviewers for their patience and cogent reviews of papers, who helped us and the CGiV community with their expertise and feedback to shape this content effectively.

Our very special thanks go to all programme, organizing and liaison committee members who go out of their way to help shape the CGiV Forum year after year.

We would like to extend sincere thanks to the local organising committee, especially Prof. M. Fakir of the Faculty of Sciences and Technics at Beni Mellal, Morocco.

Finally, we offer sincere thanks to the Graphicslink team for their continuous efforts in preparing, organising and handling the conference administration. Appreciation is also due to Randy Bilof, Proceedings Production Editor (Conference Publishing Services, IEEE Computer Society), for his high standards of editorial production of this Proceedings book.

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D-Art Gallery 2016

The Symposium and Gallery of Digital Art D-Art accompanies two annual international conferences: the Information Visualization Conference and the Computer Graphics, Imaging & Visualization Conference.

This year the setup is as follows: Information Visualization Conference (IVS), 19th International Conference on Information Visualization (www.graphicslink.co.uk/IV2015), 21–24 July 2015 • University of Barcelona • Barcelona, Spain

13th International Conference on Computer Graphics, Imaging & Visualization
29 March–1 April, 2016 • Sultan Moulay Sliman University • Morocco
<http://www.graphicslink.co.uk/cgiv2016>

Artists, scientists, mathematicians, and anyone using digital imagery and data, involved in visual storytelling, art, and graphics are invited to contribute.

Topics might relate to:

- Preparing artists to learn programming, preparing programmers to learn aesthetics
- Interrelationship between disciplines. How computer graphics can influence computer science and software engineering
- Issues in digital art: technical challenge and artistic quality, criticism, perception in the field
- Art and visualization of spatial, tonal, and temporal domains: industry, academia, media
- New media arts approaches within medical science and technology, nano art
- Games and interactive multimedia
- Information technology in visual arts and culture, visual art for IT visualization
- Cognitive science issues, digital art and visual learning: critical and abstract thinking, problem finding
- The role of digital art and graphics in production of web video for marketing
- Digital fabrication methods. Process (including collaborative efforts)
- History of computer graphics and art
- Copyright (representation through a detail, watermark, resolution, etc.)

Interested parties are invited to submit a paper presentation proposal for a conference of their choice, and/or for the D-Art Gallery. The artwork media range from 2-D, 3-D, time-based animations and movies, games, or any form of interactive work, which bring about the connections between art, science, data visualization, simulation, or any form of interactivity.

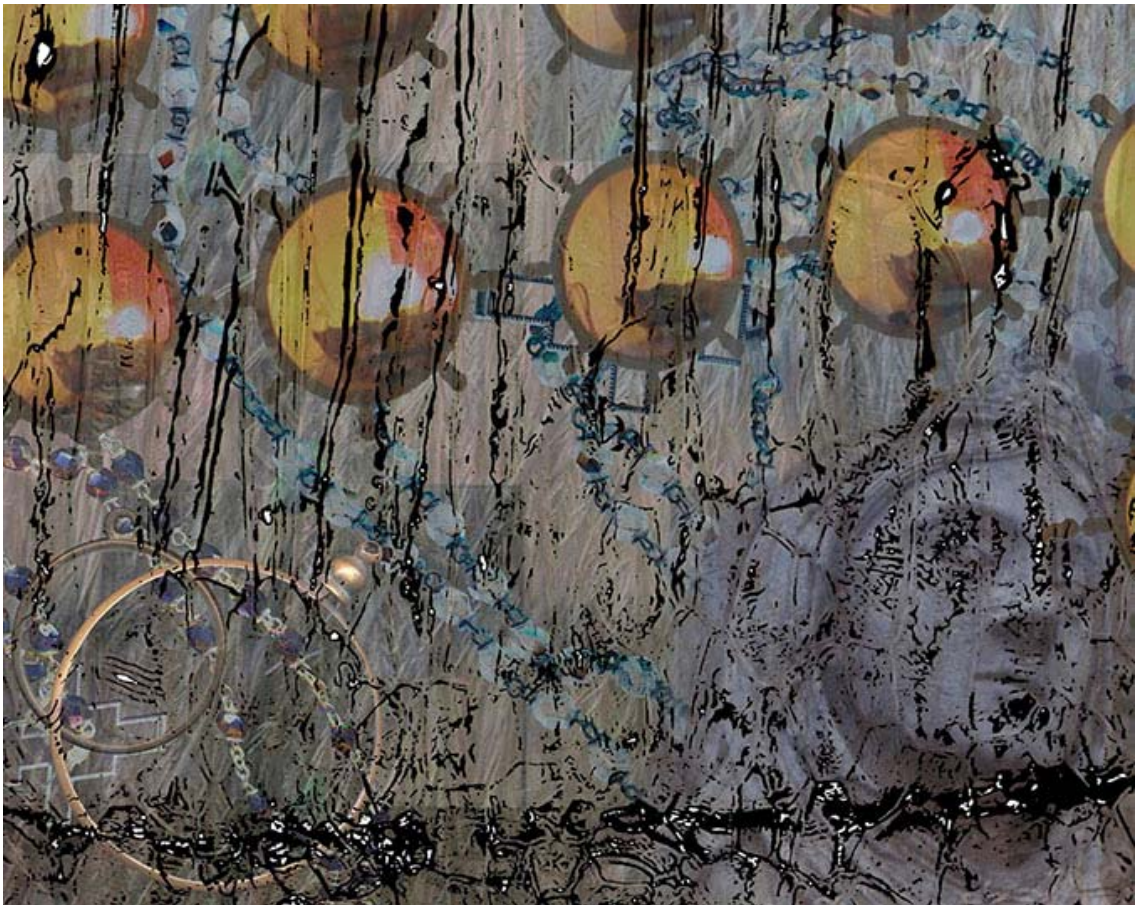
The gallery is located on the London office's server, for a year from the beginning of each conference until the beginning of the new one. Moreover, artists have the opportunity to present their work during the conference. The office in London is requesting work coordinated by people from different continents and distributed worldwide.

Many definitions have changed; aesthetics goes together with usability, criticism with

standards, objectives with assessment, etc. Art goes with science, math with music, data with information, shapes with meaning, colors and textures with coding, and combination of lines with a message.

As technology progresses, the gap between art, science, technology, and information diminishes, and gains its visual power. This allows more space for interaction, the integrative, often collaborative nature of the work, and the range of aesthetical choices. We could witness nano art and photographic images, dynamic real-time data display, the beauty of glyphs, data mining, semantic web, metaphorical display of information, to say nothing about fractal geometry, or various types of data representation.

The idea of the container of the story finds many supporting works. We have a need to consider almost everything as a story, but each story needs to be retold differently to fit each purpose and medium, such as a poem, a novel, theatrical performance within a limited space of the stage, an animation, a video (often merged with animation).



"A Time of Beliefs" © Margie Labadie

"These works address the visual nature of religion and that we garner information about religion and even identify with religion based on its visible cues. Religious beliefs are based in

the history of the religion. A religious community will constantly, albeit imperfectly, bring ancient ideas into the present through visualization, i.e., through art and performance vis-a-vis sculpture, jewellery, costume and ritual."

The D-ART 2015/16 Gallery Exhibiting Artists

LiQin Tan
Anna Chupa
Joohyun Pyune
Santiago Echeverry
Harvey Goldman
Daniela Sirbu
John Corbett
Gabriele Peters
Nancy Wood
Heather Freeman
Bogdan Soban
Galt Tomasino
Gina Gibson
Margie Labadie
Dena Elisabeth Eber
Corinne Whitaker

Gloria DeFilipps Brush
Chris Kitchener
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Anna Ursyn
Neil Howe
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Chiara Passa
Richard Merritt
Mohammad Majid al-Rifaie

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“Genetic Landscapes Series I” – Daniela Sirbu

“This is part of an algorithmic art series generated through interactions between the artist and a multi-agent computational system. The artificial system creates a medium for visual content development populated by intelligent agents, which draw new shapes in the process of adapting their behavior to input from the artist. The panel includes several frames sampled from 56 generations of system evolution. Programming language: Processing.”