Building Bridges between Research and Applications

Newly appointed Editor in Chief Torsten Möller thanks outgoing EIC Miguel Encarnação, discusses the history of IEEE Computer Graphics and Applications and the current issue, and welcomes new members of the magazine’s Editorial Board.

IEEE Computer Graphics and Applications magazine was launched in 1980, when I was in third grade on the other side of the Iron Curtain. In its first issue, then Editor in Chief Michael J. Wozny talked about the growing importance of computer graphics and applications in industry and science. This magazine “will appeal to the end user as well as to the specialist. Each issue will cover a broad spectrum of research areas and applications.” The world has changed dramatically since then, but it is clearer now more than ever that the impact of computer graphics and its applications is broad and wide and is felt in every aspect of our lives today. I am greatly honored to take over as the editor in chief of such a long-lasting, impactful magazine.

While I know that it will be hard to live up to the expectations of a long list of amazing previous editors in chief, I am grateful for a very dedicated and hard-working editorial board as well as the IEEE Computer Society staff that make this magazine possible. I especially would like to thank our previous editor in chief, Miguel Encarnação, who has done a tremendous job in running the magazine smoothly and on time. He prepared to take over as editor in chief in 2013. Coincidentally, this was the year when I moved from North America to Austria to start a research group on visualization and data analysis at the University of Vienna. Thanks to Miguel and his team, we see an increased interest in the magazine, which shows through a rising impact factor. He pioneered a link to the IEEE Visualization conference as well as the IEEE Virtual Reality conference. Since 2015, authors can present their work previously published in CG&A at the IEEE Visualization conference. Based on the success with IEEE VIS, we are extending this model to the IEEE Virtual Reality conference in 2018. Miguel also created a Twitter account (@ieeeecga) and a Facebook community (www.facebook.com/ieeecga) for CG&A to reach a new readership. Miguel has kindly agreed to continue his service to the magazine by joining its advisory council.

UNIQUE DEPARTMENTS

Computer graphics and its applications are broad and CG&A is one of the only places where interesting research from such areas as computer graphics, augmented and virtual reality, visualization, and human-computer interaction comes together. What is special and unique for our
community, however, are the departments. Some have been running for many years. Mike Potel’s first Application entry was in November of 1994 and has been going strong ever since (see also http://www.wildcrest.com/Potel/Portfolio/AppsDeptArchive.html)! When Theresa-Marie put together her first Visualization Viewpoints (by Turner Whitted) in 1999, I had just defended my Ph.D. thesis and started a tenure-track position at Simon Fraser University (see http://theresamarierhyne.com/Theresa-Marie_Rhynes_Viewpoint/VisViews_Department_Listing.html). Others are brand new. Our newest department “People in Practice” will be on evaluations in research and debut later this year. It will be headed by Melanie Tory, a senior scientist at Tableau research. Melanie recently moved from academia to industry and deeply cares about the user in our applications. She has been a long-time board member of CG&A and has been the magazine liaison with IEEE VIS. By coincidence, she had also been my first PhD student and we worked together at Simon Fraser University.

Another new department editor is Amit Agrawal, who is heading Tools and Products with his first curated entry in the current issue. Amit has over 20 years of experience in multimedia technologies. Among others, he was the executive director of software engineering at Sony Pictures Imageworks, where he supervised software development for both computer animated and visual effects feature films including The Polar Express, Spider Man 1 and 2, Stuart Little, Hollow Man, and the Oscar-winning short film Chub Chubs.

In addition, I’m pleased to announce that Christian Sandor joined Frank Steinicke as the co-lead on the department of Spatial Interfaces. He is one of the forces behind the augmented reality revolution and has gained experience in both industry and academia.

Further to these changes, the following departments have been going strong and round out the success of CG&A: Art on Graphics by Bruce Campbell and Francesca Samsel; Dissertation Impact by Jim Foley; Education by Ginger Alford and Beatriz Sousa Santos; as well as Graphically Speaking by André Stork. Please contact us with your ideas and contributions for interesting content.

Lastly, I would like to thank, also in the name of the departing editor in chief, the following departing department heads: Wolfgang Stuerzlinger for co-leading the Spatial Interface department; and Associate Editor Victoria L. Interrante and Lisa S. Avila and Mike Bailey for their co-editorship of the Tools and Products department.

As the editor in chief, I intend to continue building bridges between research and applications, bringing novel ideas from a broad range of computer graphics and its applications to our readership. Hence, “each issue will cover a broad spectrum of research areas and applications.” I will do my best to engage the research and practitioner communities to be part and contribute to the journal. After all, it is a unique place for our communities.

IN THIS ISSUE

The January/February 2018 issue features five great papers from the general queue. All of these papers highlight new research in image-based modeling and image analysis. The article by Marcelo Cabral Ghilardi, Julio C.S. Jacques Jr., and Isabel Harb Manssour on “Crosswalk Localization from Low Resolution Satellite Images to Assist Visually Impaired People” puts algorithms and novel data sources into the services of the needy. It uses an SVM classifier to great effect. The work by Shiqi Wang, Ke Gu, Kai Zeng, Zhou Wang, and Weisi Lin on “Objective Quality Assessment and Perceptual Compression of Screen Content Images” focuses on the compression of images for applications like thin-client applications. They adapt general ideas on perceptual quality metrics for compression towards the specifics of images with lots of text and user interface widgets.

Then, there are two papers on warping of images. The work by Chuhua Xian, Shuo Jin, and Charlie C. L. Wang on “Efficient C2-Weighting for Image Warping” introduces a new framework for a higher order blending algorithm for image warping. On the other hand, the work by Haiming Zhao, Xiaogang Jin, Xiaojian Huang, Menglei Chai, and Kun Zhou on “Parametric Reshaping of Portrait Images for Weight-Change” focuses on the manipulation of faces in headshots, helping to thin or thicken the overall shape of the face.
Lastly, “ARIES: Enabling Visual Exploration and Organization of Art Image Collections” by Lhaylla Crissaff, Louisa Ruby, Samantha Deutch, Luke DuBois, Jean-Daniel Fekete, Juliana Freire and Claudio T. Silva provides a very specific application of image-based modeling to exhibit artifacts from art history. They provide what was once accomplished with so-called light boxes in the physical world in the digital, online world.

We hope that you enjoy this issue. Whether you do or don’t, please engage with the authors and their work, engage with our editorial board or with me directly. Help us make this your magazine! If your life isn’t entwined with the magazine as much as mine yet, we hope to help you get there.

NEW EDITORIAL BOARD MEMBERS

Christian Sandor (chris.sandor@gmail.com) is an associate professor at one of Japan’s most prestigious research universities, Nara Institute of Science and Technology (NAIST), where he is co-directing the Interactive Media Design Lab together with Professor Hirokazu Kato. Since 2000, his foremost research interest is Augmented Reality, as he believes that it will have a profound impact on the future of mankind.

In 2005, he obtained a doctorate in computer science from the Munich University of Technology, Germany under the supervision of Gudrun Klinker and Steven Feiner. He decided to explore the research world in the spirit of Alexander von Humboldt and has lived outside of Germany ever since to work with leading research groups at institutions including: Columbia University (New York, USA), Canon’s Leading-Edge Technology Research Headquarters (Tokyo, Japan), Graz University of Technology (Austria), University of Stuttgart (Germany), and Tohoku University (Japan).

Before joining NAIST, he directed the Magic Vision Lab (http://www.magicvisionlab.com). Together with his students, he won awards at the premier Augmented Reality conference, IEEE International Symposium on Mixed and Augmented Reality: best demo (2011, 2016) and best poster honourable mention (2012, 2013). He has presented several keynotes and has acquired 2 million USD funding; in 2012, Magic Vision Lab was the first, and still only, Australian lab to be awarded in Samsung’s Global Research Outreach Program. In 2014, he received a Google Faculty Award for creating an Augmented Reality X-Ray system for Google Glass.

Sandor is an editorial board member of Elsevier Computers & Graphics and IEEE Computer Graphics and Applications. He is a steering committee member of ACM Symposium on Spatial User Interaction and IEEE International Symposium on Mixed and Augmented Reality.

Amit Agrawal (amit.agrawal@me.com) is a senior technology executive specializing in new product development leveraging new technology. He has over 20 years of experience in multimedia technologies and spent a few years exploring the application of these technologies in the educational domain. These days, he is principal at Kleene Closure Consulting where he helps companies apply emerging technologies including machine learning and VR to their workflow.

Previously, as CTO of Auryn Inc., he was responsible for developing their ground breaking proprietary technologies which brought nonphotoreal rendering technologies to market in the form of animated films and children’s apps. Before joining Auryn, Amit was the Executive Director of Software Engineering at Sony Pictures Imageworks, where, he supervised software development for both computer animated and visual effects feature films including The Polar Express, Spider Man 1 and 2, Stuart Little, Hollow Man, and the Oscar-winning short Chub Chubs. Agrawal holds a BTech in computer science from the prestigious Indian Institute of Technology as well as a PhD from the Computer Science Department at the University of Southern California.
Melanie Tory (mtory@tableau.com) is a senior research scientist focusing on interactive visual data analysis. Her research explores techniques and tools to help people analyze data more effectively. This includes intuitive interactions with visualizations and the design and evaluation of tools that support the holistic data analysis process, including sensemaking, analytical guidance, and collaboration. Before joining Tableau, Melanie was an associate professor in visualization at the University of Victoria. She earned her PhD in Computer Science from Simon Fraser University and her BSc from the University of British Columbia. She is associate editor of IEEE Computer Graphics and Applications and has served as Papers Co-chair for the IEEE Information Visualization and ACM Interactive Surfaces and Spaces conferences. She has also served as a member of the IEEE InfoVis Steering Committee since 2017.