Foreword
VL/HCC 2011

Welcome from the Conference Chairs

It is our pleasure to welcome you to the 2011 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC; www.vlhcc.org), held in Pittsburgh, Pennsylvania, USA, at the Sheraton Station Square Hotel and at Carnegie Mellon University. We have assembled an excellent technical program, along with many opportunities to meet up with old and new colleagues, and to explore Pittsburgh, especially the National Aviary, site of the main conference reception.

We are pleased to welcome two renowned keynote speakers as part of the VL/HCC 2011 program: Jeannette Wing from Carnegie Mellon University, and Brian Powell from National Instruments. Jeannette Wing coined the term “Computational Thinking,” and she has been instrumental in widening the understanding that the core set of intellectual concepts in computer science are broadly applicable, which is a key part of VL/HCC’s human-centered computing theme. Having Brian Powell from National Instruments present a keynote is especially appropriate this year, since it is the 25th anniversary of the creation of LabVIEW from National Instruments, which is one of the most successful commercial visual programming languages. Also, this year is the 20th anniversary of LabVIEW being first presented at VL in 1991, and also the 35th anniversary of the founding of National Instruments. Rounding out the keynote events, the conference opens with a panel of industry experts, who will discuss the theme “Successful Visual and End-User Programming Systems.”

The Call for Papers for VL/HCC 2011 attracted 61 submissions, including 53 full papers and 8 short papers. Every paper, in both categories, was independently and anonymously reviewed by three members of the Program Committee. After the first round of reviews, the authors were invited to submit rebuttals to the reviews, which were discussed extensively by the original reviewers and other program committee members. At the end of this process, the program chairs accepted 18 full papers and 6 short papers, for a full paper acceptance rate of 33%. To enrich the technical program, the committee also accepted 8 short papers that had originally been submitted as full. At the conference, these 32 papers were organized into sessions on visual domain-specific languages, end-user programming, software development tools, visual languages and theory, debugging, program understanding, model-driven development, software visualization.

The result of this thorough review and selection process are these proceedings, which also reflect how research presented at VL/HCC has evolved. One of the most striking aspects of this year’s papers is the sheer diversity of domains in which the authors are exploring human-centered approaches to software development. This year’s papers consider scientific programming, robotics, 3D virtual worlds, intelligent assistants, augmented reality, sketching, open source, software engineering, security, and of course, spreadsheets, a long-standing application area at VL/HCC.
The proceedings also contain abstracts for the posters and demonstrations that will be shown at a special dinner reception at Carnegie Mellon University during the conference. Seven demonstrations and seven posters were accepted to the conference, and these will be joined at the reception by demonstrations of a variety of the systems described in full or short papers, as well as demonstrations from the conference's corporate sponsors.

The Graduate Consortium, to be held the day before the main conference, will provide 7 students with feedback on research aimed at helping end users visualize, analyze, and tailor large socio-technical systems. The abstracts of the graduate consortium papers are also included in these proceedings. After the conference, the EUSES Consortium (www.eusesconsortium.org) will hold their annual meeting as a one day workshop.

Numerous people have contributed to making this edition of VL/HCC a success. We could not have accomplished our tasks as conference chairs alone. We would particularly like to thank the members of the Program Committee, acknowledged on the following pages, for their careful and thoughtful consideration of the submitted papers. We also want to thank James Lin from Google who served as publicity chair, ensuring broad dissemination of conference communications, and also designed and maintained the conference web site.

We would also like to thank our sponsors: IEEE for assisting with the organizational and financial aspects of the conference; Carnegie Mellon University for providing space and organizational support; and the United States National Science Foundation for funding the Graduate Consortium.

A particular focus for this year was increasing our corporate participation, and we are delighted to have a significantly larger number of attendees and presenters from industry. We especially want to thank our corporate sponsors, who are (as of the time these proceedings went to print): Microsoft Research at the Silver level, and National Instruments, Unlimited Software, Tersus, and Northwoods Software at the Bronze level. Without these many forms of support, VL/HCC 2011 would not have been possible.

We hope you find the Symposium intellectually stimulating, and we are confident that the papers and abstracts presented in these proceedings will have lasting value.

**Brad A. Myers**  
General Conference Chair

**Gennaro Costagliola and Andrew Ko**  
Program Co-chairs

**Allen Cypher and Jeffrey Nichols**  
Workshops, Tutorials, Posters and Demonstrations Chairs

**Christopher Scaffidi**  
Graduate Symposium Chair and EUSES Consortium Director

**Caitlin Kelleher**  
Proceedings Chair