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C&C'15

Proceedings of the 2015 ACM SIGCHI Conference on Creativity and Cognition

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Association for
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Advancing Computing as a Science & Profession

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Welcome: Céad mile fáilte

As Conference Chair it is my great pleasure – on behalf of all those who have prepared for this event – to welcome you to the 2015 Conference on Creativity and Cognition, here in Glasgow, Scotland.

Glasgow – in gaelic the "dear green place" – is arguably the UK's most vibrant city. In the past it has played a major role in the Industrial Revolution and in the Scottish Enlightenment. Currently it is a city of some 800 thousand people known for their hospitality, generosity, love of the arts and great good humour. You are sure of the most warm welcome (fáilte).

The 2015 Conference is hosted jointly by the Glasgow School of Art and the City of Glasgow College. The Glasgow School of Art has had an eventful year. On 21st May 2014 a massive fire damaged part of the world renowned building designed by Charles Rennie Mackintosh; a few months earlier the GSA celebrated the opening of the great Reid building designed by Stephen Holl Architects that faces the Mackintosh building and in which the main events of the Conference will take place. The City of Glasgow College will shortly occupy a brand new campus on a city centre site; this will bring together a number of prestigious, and previously disparate, colleges.

The Glasgow School of Art will host the three days of the main Conference and the Workshops, Posters, Performances and the Graduate Symposium. The City of Glasgow College will host the Art Exhibition in its splendid "Gym" space.

The Monday evening Reception will be hosted by the Lord Provost of the City in the marvellous City Chambers. The Conference Dinner will be held on Tuesday in the wonderful Oran Mor, in the city's West End. The Wednesday Party, with Performances, will be held in the "Vic", on the GSA campus. Thursday see the Workshops and the Graduate Symposium.

Conference titles are always difficult and often contentious. The 2015 theme is Computers | Art | Data – sufficiently descriptive, inclusive and stimulating. The objective of all those involving the selection of academic papers, workshops, performances, posters and graduate papers has been to live up to the very high standards of previous conferences in 2009, 2011, and 2013. As currently planned there will be some 27 Academic Papers during the Monday to Wednesday conference in the Reid auditorium; some 20 Art Exhibits in the CGC Gym space over the 4 days of the event; some 4 Workshops on the Thursday in the Reid building; some 5 Performances during the Party in the Vic on Wednesday evening; some 14 Posters in the foyer of the Reid building; and some 10 Graduate Student presentations on Thursday in the Vic. A real feast of activities in the theme of Creativity and Cognition!

Of course, such success as C+C/15 may have is largely due to the efforts and judgement of all those involved: very many thanks for the difficult selection of submissions are due to Andruid Kerne, Ellen Do, David Shamma, Brian Bailey, Michael Smyth, Paul Cosgrove and Erin Cherry. We are particularly privileged to have Marcos Novak, Steve Benford and Stephen Scrivener as Keynote Speakers.

As Conference Chair my weekly contact over the last 9 months has been with the local operations/arrangements team – Inga Paterson of the Glasgow School of Art and Andrew Welsby and David Eaton of the City of Glasgow College. In particular, David and Inga have been a tower of strength – so my grateful thanks to them.

Above all, very many thanks to Ernest Edmonds for trusting us to be your hosts.

Tom Maver, *Glasgow School of Art*
Conference Chair, June 2015

Preamble

ACM Creativity and Cognition 2015 will serve as a premier forum for presenting the world's best new research investigating computing's impact on human creativity in a broad range of disciplines including the arts, design, science, and engineering. We are interested in how computing can promote creativity in all forms of human experiences. Thus, we value research that address new, synergistic roles for computing and people in creative processes. We also acknowledge that computing, as contextualized in sociotechnical systems, may sometimes have an undesirable impact. These phenomena also warrant investigation.

Creativity and Cognition 2015 will be hosted by The Glasgow School of Art and the City of Glasgow. The C&C'15 conference theme is **Computers | Arts | Data**. The theme will serve as the basis for a curated art exhibition, as well as for research presentations.

Creativity is the cornerstone and the fundamental motive of both the aesthetic and engineering disciplines. According to the U.S. National Academies of Science and Engineering, creativity is the strategic key to economic success. Creativity, at the personal (mini-c), social (little-c), and societal (big-C) levels, is fundamental to human satisfaction, happiness, and progress.

Despite its identification with ineffable aspects of human experience, much has been accomplished in the study of creativity. Powerful methodologies are based in art and design. One set of valuable methodologies comes from creative cognition. Another set comes from social psychology. Yet another beneficial mode of inquiry comes from ethnographic and sociological studies of human experience. All of these diverse approaches are used to fruitfully investigate the impact of computing on human creativity. Investigation of creativity and computing thus involves and connects the arts, the humanities, and social sciences, in addition to science, technology, engineering, and mathematics.

ACM Creativity and Cognition 2015 invited papers, posters, and demonstrations investigating how interactive computing systems and sociotechnical processes affect creativity. We cherish creativity as a wonderful aspect of human experience, transformative and potentially transcendental. Creativity is the partner of inspiration, of moments when we seem to go beyond ourselves to reach new heights. Creativity is the font of innovation.

Creativity and Cognition papers address the impact of computing on individual creative experiences, as well as social and collaborative contexts. In all cases, we seek for the presentation of work to include forms of validation featuring data about people, in order to show how computing environments impact human creativity. The data can take many forms, including qualitative, quantitative, and sensory. Creativity and Cognition 2015 will present papers addressing: (1) creativity support environments, (2) studies of technology, people, and creativity, (3) evaluation methods, (4) theory, and (5) creative works that utilize computing to engage, stimulate, and provoke human experience.

Numbers

Creativity and Cognition 2015 Conference will present a wide variety of work selected through the peer review process. As in the CHI conference, reviewers were asked to focus on the significance of the submission's contribution, originality and validity, the quality of the presentation, and the benefit others can gain from its results.

Full papers are up to 10 pages. Notes are up to 4 pages. Poster submissions are to be a maximum of 4 pages in length. Demonstrations are to be a maximum of 2 pages in length. Papers, posters, and demonstrations were reviewed independently. Graduate Student Symposium submissions are to be a two-page paper. We also called for proposals for artworks, music, performances and installations to be presented in conjunction with the conference, in a two-page format.

We received 103 paper submissions. Of these, 88 were full paper submissions and 15 were notes. After the review, we accepted 23 full papers and 6 notes, for a combined 28% acceptance rate.

The conference will also include technical demonstrations, posters, and the graduate student symposium. Submissions to these tracks were selected through a peer review process. Five technical demonstrations will be showcased at the conference, selected from eight submissions. From 27 submissions, 14 posters were selected for display at the conference. The graduate student symposium is a one-day workshop held after the main conference. The symposium received 23 submissions of which 14 were accepted for presentation. The symposium was also funded in part by an award from the U.S. National Science Foundation.

In addition to the main conference there will also be an exhibition of artworks and performances that relate to the conference themes. The exhibition will be held in the original gymnasium that sits on top of an iconic 1960s Glasgow City College building. As a city, Glasgow has a tradition of using alternative "pop up" spaces. There were a total of 49 submissions from which 23 were chosen for inclusion. The selection was completed through peer review. The criteria for acceptance focused on both the quality of the submission and the suitability for display in the designated exhibition space.

Organizing a conference is no small feat. With the tireless efforts from the Organizing Committee members, reviewers and volunteers, C&C'15 will be a unique experience of the gathering of the minds. We thank Lisa M. Tolles for the impossible tasks of herding the cats to produce this volume to document the excitements of the event for your enjoyment and contemplation.

Ellen Yi-Luen Do
Technical Program Chair
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Local Organising Chair
City of Glasgow College

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Northrop Grumman

Danilo di Mascio
Graduate Student Symposium Co-Chair
Northumbria University

Paul Cosgrove
Art Program Chair
Glasgow School of Art

Sue Gollifer
Art Program Co-Chair
University of Brighton

Papers Introduction

Aw'rite Glasgow! We are excited to present the Papers of ACM Creativity and Cognition 2015. We sought to create a truly interdisciplinary site for presenting human-computer interaction research, putting artistic and scientific methods on equal footing, and promoting synergetic syntheses. While following in the tradition of Creativity and Cognition, we introduced several new procedures and processes; our aim was to improve the review process, the feedback to the authors, and the overall diversity of the papers' program. To do this, we introduced a more distributed reviewing process, new keywords for describing Creativity and Cognition research, and emphasized thoroughness and compassion in the reviews. We recruited 25 expert Associate Chairs — some identified as artists, some consider themselves scientists, some technologists, some cultural theorists — from a broad and intentional blend of fields and methodologies. We matched 3–6 papers to each AC, based on their expertise, ensuring all conflicts were marked and help blind to anyone affected.

We overhauled the keywords that authors use for describing papers and reviewers use for describing their expertise. Along with a bidding process by ACs, who could also upload papers indicative of their research interests, the keywords played a major role in matching ACs with papers. We organized the keywords around 5 conceptual dimensions: Fields, Media of Expression, Interaction (Modalities and Components), Evaluation Methodologies, and Users. We hope the community will find this conceptual space useful in years to come.

We developed a clear specification for what constitutes a good review. In addition to identifying aspects of intellectual merit, the specification includes guidelines such as to be kind as well as clear, to be thorough, and to be explicit when identifying missing prior work. We integrated the instructions to reviewers and ACs directly into review forms, to keep reminding reviewers.

In practice, the Associate Chairs were the heart of the reviewing process. Each AC was responsible for recruiting 3-4 appropriate external reviewers for each of their assigned papers. Each AC was responsible for writing her own review of each paper, and then writing a meta-review synthesizing all the reviewers' positions. In some cases, where a consensus was not easily arrived upon, we recruited an additional 2AC review. The ACs also nominated the best paper candidates.

Following other SIGCHI conferences, we increased the length of full papers to 10 pages, we introduced a Notes designation, for 4 page papers, and we used the Precision Conference System (PCS). We received 103 valid submissions. Of these, we accepted 23 full papers and 6 notes, for a 28% acceptance rate. We are proud to certify the integrity of the process. We believe we have fostered an excellent papers program. We look forward to the excellent discussions to come.

We would like to thank Tom Erickson, of the SIGCHI Executive Committee, for supporting our keyword endeavors, James Steward for his support with PCS, and Bill Hamilton for helping in the initial organization of the paper's track. And finally, much thanks to our ACs and Reviewers who made this program excellent as evident by many of the authors, both accepted and rejected, who have reached out to us in thanks for their high quality reviews.

We hope that you will enjoy the papers, that your interests will be piqued, imaginations tickled, and discussions stimulated. We hope that the through the papers program and the rest of the conference, the Creativity and Cognition community will grow through 2015 and beyond.

Andruid Kerne
Papers Chair
The Interface Ecology Lab, Texas A&M University

David A. Shamma
Papers Chair
HCI Research Group, Yahoo Labs & Flickr

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C&C 2015 Organizing Committee

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