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TEI '14

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PREFACE

Welcome to ACM TEI 2014, the 8th International Conference on Tangible, Embedded and Embodied Interaction, held February 16 – 19 at Ludwig-Maximilians-Universität in Munich, Germany!

The work presented at ACM TEI has a strong focus on how computing can bridge atoms, bits and our surrounding everyday environment into cohesive interactive systems. What is surprising is that this focus was considered quite esoteric in 2007, the date of the first TEI conference. This has changed remarkably quickly. Creating such interactive systems has become easier through advances in materials, 3d printing, easy-to-program microcomputers, high-quality sensors and actuators, and specialized toolkits. More importantly, our culture has changed its perspective, where people no longer consider it unusual for computation to be embedded in our environment, surroundings, and everyday objects.

While TEI has a seemingly narrow focus (at least compared to the broader ACM CHI Conference), you will find that this year's papers and program addresses a diverse range of HCI issues, design, interactive art, UX , tools, and technologies. Our **Keynote Speakers** herald new ways to think about the future, from Chris Harrison's views on the coming 'rich-touch revolution', to Eric Paulos' views on 'hybrid ecologies' that considers new stratagems for computing culture. **Paper** and **Work in Progress** topics span a wide range of sensing and input systems, wearables, various materials and everyday objects appropriated for interactivity, touch and gestures, play, haptics, music, prototyping and sketching, and much, much more. **Studios** cover similarly diverse topics, from cardboard modelling to dancing robots to design methods to use of embedded audio to explorations of various prototyping methods and toolkits. Our **Arts Track** includes exhibits shown during the breaks throughout the conference. Our **Student Design Challenge** is an open-ended intriguing contest where entrants have to build a prompt, scenario or costume that will challenge our assumptions of normality.

In spite of the wealth of activities, the ACM TEI 2014 will remain intimate. As a single-track conference, all audience members will share the same experience, which in turn means that they can discuss what they see between themselves. It serves as a unique forum for presenting and exchanging ideas around innovative works through talks, interactive exhibits, demos, hands-on studios, posters, art installations, and performances.

Located in the heart of Bavaria, Munich is Germany's third largest city and sometimes ironically referred to as the northernmost city of Italy. It combines a vibrant cultural, economic and scientific scene with a unique southern flair and a relaxed way of life. Its beer gardens make it equally attractive in the summer as its nearby skiing resorts do in winter. The nearby Alps provide endless opportunities for outdoor endeavours at any time of the year. Munich hosted the 1972 Olympic summer games and the 2011 FIS ski world cup.

At the same time, Munich is one of the main science locations in Germany and Europe. Internationally operating companies such as Siemens and BMW have research facilities located across the city. It is also home to many foreign research facilities like DoCoMo Euro-Labs. In addition, Munich has several universities, the most important ones being the Ludwig-Maximilians-Universität München (LMU) and the Technical University of Munich (TUM). Both were among the winners in Germany's national elite university ranking, which only lists nine German universities so far. Overall, the research landscape in Munich is not only very wide and vivid but also diverse, and the conference will attract a lot of attention and will benefit from this, most probably attracting a new audience and fresh blood.

Now for a few statistics. We received 172 paper submissions from 24 countries all over the world: all but 2 countries provided 2 or more submissions. 46 of these were accepted, representing 16 countries and giving an overall acceptance rate of 26.7%. Other acceptance/submission numbers include: Work in progress (37/59), Arts Track (13/39), Design Challenge (11/22), Graduate Student Consortium (9/16), and Studios (10/11). Students were also very keen to attend ACM TEI: We received 113 applications from 26 countries for 27 available spots as student volunteers.

Finally, a conference such as ACM TEI represents a community. As Conference co-chairs, our primary role was to ask people to take on various jobs, some of them quite significant efforts. We were delighted at how readily so many of our community not only agreed to do it, but did so in a highly competent manner. They took charge of all the large and small things that make conferences successful: managing the program; refereeing, selecting and arranging studios; giving advice (via the steering committee), organizing the graduate student consortium; doing local arrangements and publicity; ensuring publication logistics, handling student volunteers, and registering all of you so you could attend this conference. Our sponsors supplied funds and/or services that helped make the conference an even more enjoyable experience: ACM SIGCHI, Ludwig-Maximilians-Universität Munich, Deutsche Forschungsgemeinschaft, Fujifilm Dimatix, Ravensburger, Visionair, Landeshauptstadt München, Microsoft Research, and Tangible Display. The Ludwig-Maximilians-Universität Munich also stepped in to help both the organization and to host the conference. We are grateful to all.

What a fantastic community!

Andreas Butz (LMU, Germany) and Saul Greenberg (University of Calgary, Canada)
ACM TEI 2014 Conference Co-Chairs

KEYNOTE BY CHRIS HARRISON

The Rich-Touch Revolution is Coming

Seven years ago, multi-touch devices went mainstream, and changed our field, the industry and our lives. In that time, mobile devices have gotten much more capable, yet the core user experience has evolved little. Contemporary touch gestures rely on poking screens with different numbers of fingers: one-finger tap, two-finger pinch, three-finger swipe and so on. We often label these as "natural" interactions, yet the only place I perform these "gestures" is on my touchscreen device. We are also too quick to blame the "fat finger" problem for much of our touch interface woes - if a zipper or pen were too small to use, we would simply call that "bad design". Fortunately, our fingers and hands are amazing, and with good technology and design, we can elevate touch interaction to new heights. I believe the era of multi-touch is coming to a close, and that we are on the eve of an exciting new age of "rich-touch" devices and experiences.

About the Speaker

Chris Harrison is an Assistant Professor of Human-Computer Interaction at Carnegie Mellon University. He broadly investigates novel sensing technologies and interaction techniques, especially those that empower people to interact with small devices in big ways. Harrison was recently named as one of the top 30 scientists under 30 by Forbes, a top 35 innovator under 35 by MIT Technology Review, and one of six innovators to watch in 2013 by Smithsonian. He is also the CTO of Qeexo, a touchscreen technology startup. When not in the lab, Chris can be found welding sculptures, blowing glass, and visiting remote corners of the globe.

KEYNOTE BY ERIC PAULOS

Hybrid Ecologies: New Stratagems for Computing Culture

This talk will present and critique a new body of evolving collaborative work at the intersection of art, computer science, and design research. It will present an argument for hybrid materials, methods, and artifacts as strategic tools for insight and innovation within computing culture. It will explore and demonstrate the value of urban computing, citizen science, and maker culture as opportunistic landscapes for intervention, micro-volunteerism, and a new expert amateur. Finally, it will present and question emerging materials and strategies from the perspective of engineering, design, and new media.

About the Speaker

Eric Paulos is an Assistant Professor in Electrical Engineering Computer Science at UC Berkeley and faculty within the Berkeley Center for New Media. Previously, Eric held the Cooper-Siegel Associate Professor Chair at Carnegie Mellon University where he was faculty within the Human-Computer Interaction Institute. His body of work spans a broad range of research territory from robotics, urban computing, citizen science, design research, critical making, and new media art. Eric received his PhD in Electrical Engineering and Computer Science from UC Berkeley but his real apprenticeship was earned through over two decades of explosive, excruciatingly loud, and quasi-legal activities with a band of misfits at Survival Research Laboratories.

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