TEI 2019
Bid for the Fourteenth International Conference on Tangible, Embedded and Embodied Interaction
Tempe, Arizona, USA
SUMMARY

THIS PROPOSAL OUTLINES OUR BID TO PLAN, ORGANIZE, AND HOST TEI’19 IN TEMPE, ARIZONA, USA

Dates
February 23-28, 2019

Organizer
School of Arts, Media, and Engineering
Arizona State University

Location
Tempe Mission Palms
Tempe, Arizona, United States
Event at Tempe Center for the Arts (if possible)

General Chairs
Stacey Kuznetsov
Daniel Saakes
Ron Wakkary

Program Chairs
Luc Geurts
Lauren Hayes
Manfred Lau

Graduate Student Consortium Chair
Bart Hengeveld

Arts and Performance Chair
Byron Lahey

Demo Arrangement Chair
Piyum Fernando

This proposal outlines our planned organization of TEI’19, the fourteenth International Conference on Tangible, Embedded and Embodied Interaction. We propose the theme of Hybrid Materials with the aim of strengthening transdisciplinary ties across the tangible interaction, HCI, material sciences, social sciences, and arts communities.

Over the past few years, TEI research has increasingly embraced hybridity, whether through material explorations of composites such as bioelectronic, on-body, or active materials, or theoretical inquiries into socio-technical systems as hybrid assemblies. The theme of Hybrid Materials will continue to catalyze this exciting trend of tangible interaction research at the intersection of social, technical, biological, and artistic systems.

We propose to host the conference in Tempe Arizona, a vibrant and growing Sonoran desert city. The main venue, the Tempe Mission Palms, is walking distance to the ASU Campus and in the heart of Tempe shops, bars, and galleries. The conference rooms, AV services, catering, palm courtyard, and rooftop pool reception deck will offer a flexible meeting space for academic and social gatherings during the conference.

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THEME

HYBRID MATERIALS
Gaining increasing momentum over the last five years, the material turn and its effect within HCI has generated development in numerous fields of interest to the TEI community.

(Inter)active Materials
Not confined to a single approach, we have seen advancements in new materials—such as conductive and thermochromic inks, OLEDs, biosensors, or bioelectronics—which have helped to embed computing in the physical world, relocating the interface “from the glowing screen to the physical substrate” [1]. Simultaneously, comparisons between tangible computing and crafting traditions—such as crocheting or weaving—have served to destabilize assumptions about ‘low’ and ‘high’ technologies, the cultures that surround them, and even which communities have been able to participate in the discussion.

Indeed, visionary hybrid technologies are merging textiles with electronics, mechanical actuators with organic materials, or digital sensors with the human body. These hybrid, materially-oriented approaches are radically changing our understanding of what tangible interaction looks and feels like. At the same time, experiential media has provided a forum from which to shift focus from utility to aesthetics. While the notion of the computer-as-material is not new [2], there has been a renewed interest in proposing that we treat the computer not as a processor of information but rather as a material, with the ability to take on a form, much like wood or cardboard. What then are the challenges, and more importantly, the outcomes of these emerging hybrids and how can TEI contribute to their development?
THEME: HYBRID MATERIALS

WHAT DO WE WISH TO ADDRESS DURING TEI’19?

Boundaries and Seams
The recognized value of hybridity is closely associated with Chalmers’ et. al. [3] ideas surrounding seamfulness and the discussions of categories and boundaries from Bowker and Star [4]. Seamful computing celebrates points where diverse materials, as well as people, technologies, and contexts coalesce. Concurrently, materiality research stemming from the social sciences—which emphasizes the role of the physical properties of objects as being influential to social structuring—has gained popularity, without necessarily the clarity to match, within HCI. On the other hand, a Gibsonian position might focus on materials, and the surfaces that separate them, rather than positing the world as containing material objects existing within an immaterial, negative space, where ‘the material world can only be brought back to life in the dreams of theorists by conjuring a magical mind-dust that, sprinkled among its constituents, is supposed to set them physically in motion... [which] has come to be known in the literature as agency’ [5].

Design Things
Alongside this articulation of hybrid materials, TEI is increasing examining the design of systems as active, heterogeneous assemblies and things. Design things are capable of “opening to its users new possibilities of action and interaction” [6]. These things, not unlike Heidegger’s gatherings of elements, materialize heterogeneous ideas and relationships between human and non-human actors. Within HCI, the development of systems as hybrid assemblies serve to materialize complex relationships between the human body, technology, and the environment. We invite the TEI community to explore these ideas and articulate critical responses to the proposed theme of ‘hybrid materiality’. How might new materials and the design things they comprise challenge our ideas about boundaries between living and nonliving, intimate and remote, public and private, scientific and quotidian?
THEME: HYBRID MATERIALS

WHAT DO WE WISH TO ADDRESS DURING TEI’19?

Suggested Topics
Topics focusing on hybridity in interaction design include but are not limited to:
• active materials
• materiality
• material as interface
• expressive computing
• human perception
• bioelectronic systems and interactions
• on-body computing
• new materialism
• computer as material
• sociotechnical assemblies
• design things
• seamful computing
• hybrid sense-making
• transdisciplinarity and HCI
• rapid prototyping
• participatory design
• productive tensions in design

References
LOCATION
TEMPE, ARIZONA, USA
SCHOOL OF ARTS, MEDIA AND ENGINEERING, ARIZONA STATE UNIVERSITY
Why Tempe?
Tempe, Arizona is a vibrant and growing Sonoran desert city. The ASU Tempe Campus is a short light rail train ride from the Phoenix Sky Harbor Airport and the downtown Phoenix cultural attractions.

Tempe, and the larger Phoenix metropolitan area are rapidly attracting and originating a wide range of technologically focused companies. Driverless autonomous vehicles, currently being tested by companies such GM and Uber are becoming common sights in Tempe. Tech incubators are capitalizing on the highly motivated and well educated graduates of ASU.

Phoenix is well known as an ideal winter destination, boasting average high temperatures in February ranging from 68 to 73 degrees Fahrenheit and a low chance of precipitation, while much of the rest of the northern hemisphere may be suffering from severe winter weather.

The School of Arts, Media, and Engineering (AME)
The School of Arts, Media and Engineering (AME) is built on the idea that the biggest and most important problems require transdisciplinary solutions.

AME faculty have diverse academic specializations but share the quality of being richly multifaceted individuals with deep knowledge and skills in complementary areas. This individual and collaborative diversity promotes and celebrates paradigms that do not align with those of single disciplines. Tangible, embedded and embodied interaction presents a paradigm of computation and human-computer interaction that is not encapsulated in a monolithic perspective, but instead requires the modes of thinking and researching that is exemplified by the School of Arts, Media and Engineering.

The School of Arts, Media and Engineering and its undergraduate Digital Culture (DC) program are products of an institutional philosophy that has made Arizona State University a world leading school. ASU was ranked first as the “Most Innovative School”, ahead of Stanford and MIT in a 2016 ranking by U.S. News and World Report. Among the guiding “design aspirations” for the growth and evolution of ASU as a “New American University” is the goal to “fuse intellectual disciplines”.

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About AME
Tangible media is a core component of much of the research that takes place in AME and DC. Physical Computing, Prototyping Dreams, Programming the Internet of Things and Interactive Materials are just a few of the undergraduate courses taught in our program. These courses, and the graduate and faculty research that expand on these topics, are supported by dedicated electronics and fabrication studios with expert support staff and mentors. AME and DC are dedicated to thinking through making and building the environments in which we want to live.

AME facilities include multiple motion capture stages in both permanent and mobile form factors, supporting a wide range of research and performance activities centering on embodiment.

AME is home to the Center for Science and the Imagination, Synthesis Center, Social and Digital Systems Group, Laboratory for Critical Technics, Practice and Research in Enactive Sonic Art.

Venue: Tempe Mission Palms
The Tempe Mission Palms Hotel has both the meeting rooms and the technology to conduct effective presentations, collaborative workshops, studios, and social events.

Each of the conference center’s meeting rooms are flexible, designed to conform the group’s particular size and specifications. From intimate boardrooms to medium and large sized conference venues, the Tempe Mission Palms Hotel’s variety of indoor and outdoor Phoenix meeting facilities make the ideal destination for a diverse and successful gathering.

Reflecting the surrounding Phoenix-Scottsdale area’s serene desert landscapes and rose-colored vistas, the Tempe Mission Palms Hotel invites guests to relax whether traveling on a family vacation or important business trip. The beauty surrounding these Phoenix accommodations are mimicked in the décor and relaxing ambiance. Unparalleled service and spacious lodging accommodations and suites are iconic of Tempe Mission Palms.
This bid includes a transdisciplinary mix of experienced TEI chairs with new co-chairs. All of the people involved in the bid have an established track record of advancing research in tangible interaction and organizing academic gatherings. The most crucial members of the organizing committee have been confirmed and are listed below.

**GENERAL CHAIRS**

*Stacey Kuznetsov* is an Assistant Professor at the School of Arts, Media, and Engineering (AME) at Arizona State University. She received a Ph.D. from the Human-Computer Interaction Institute at Carnegie Mellon University, and a BA from New York University with a double major in Philosophy and Computer Science. She heads the SANDS (Social and Digital Systems) group at ASU, which combines approaches from computer science, interaction design, humanities, and philosophy of technology. Her projects cover DIY biology, everyday food science, interactive screen printing, and designing for human adaptation to extreme heat. She has organized conference events at top tier ACM venues (CHI, DIS, TEI, Grace Hopper), coordinating between large interdisciplinary groups of researchers, educators, and practitioners.

*Daniel Saakes* studied Industrial Design Engineering at Delft University of Technology, and he likes making things and making things that make things. During his Ph.D. he developed situated design toolkits to support teams in conceptualizing product ideas. Currently, he is based at KAIST in South Korea and runs My Design Lab. He continues to study design toolkits, but now with embodied interaction and for users in their living room. He demonstrates his work at Siggraph (Emerging Technologies) and publishes in IASDR, CHI & TEI. In 2015 he served as associate chair CHI (Design Subcommittee) and in 2016 as co-program chair at TEI in Eindhoven.

*Ron Wakkary* is a Professor in the School of Interactive Arts and Technology (SIAT) where he established the Everyday Design Studio, a design research studio that explores interaction design. Wakkary’s research investigates the changing nature of interaction design in response to everyday design practices like home life, DIY, amateur experts, hobbyists, and sustainability. In the spirit of design research, Wakkary aims to be reflective and generative, uncovering new and emergent practices of design that help to shape both design and its relations to technologies. He is an Editor-in-Chief of ACM interactions, Director of the Interaction Design Research Centre at SFU, member of the SIGCHI Executive Committee, and a member of the Steering Committee for Tangible Embedded/Embodied Interaction (TEI).
**Program Chairs**

Luc Geurts currently leads the e-Media Lab. His research focuses on technology for tangible and playful interactions. Luc holds a MSc degree in Electronic Engineering and did a PhD on signal processing for cochlear implants. His expertise in digital signal processing is now employed to interpret data retrieved from sensors within objects manipulated by the player of a computer game or another interactive software application. This information is then used to generate meaningful and engaging feedback to the user. He is member of the program committee of CHI Play and TEI and served as a program co-chair for TEI’16. He contributes to other conferences, such as CHI (ACM CHI Conference on Human Factors in Computing Systems) and UIST (ACM Symposium on User Interface Software and Technology).

Lauren Hayes is an Assistant Professor of Sound Studies within the School of Arts, Media and Engineering at Arizona State University. She is a musician and sound artist with a decade of experience building and performing with hybrid analogue/digital instruments. Her research explores new strategies for live electronic performance by investigating the performer’s physical relationship with the digital realm through the lens of enactive and embodied music cognition, and performing with haptic and tangible interfaces. She also composes haptic music that can be experienced as vibration throughout the body and leads PARIESA (Practice and Research in Enactive Sonic Art) at ASU. Her work has been presented internationally at New Interfaces for Musical Expression, the International Computer Music Conference, and ACM Creativity and Cognition.

Manfred Lau is an Assistant Professor (Lecturer in UK) in the School of Computing and Communications at Lancaster University, UK. He was a post-doc researcher working with Prof. Takeo Igarashi in Tokyo, Japan at the Japan Science and Technology Agency - Igarashi Design Interface Project. He received his B.Sc. degree in Computer Science from Yale University, and his Ph.D. degree in Computer Science, supervised by James Kuffner, from Carnegie Mellon University. Manfred’s research interests are in computer graphics, human-computer interaction, and digital fabrication. His recent research in 3D modeling and fabrication focuses on building natural user interfaces for the lay-
GRADUATE STUDENT CONSORTIUM CHAIR

Bart Hengeveld is an Assistant Professor at the Industrial Design department of the Eindhoven University of Technology. In 2011 he obtained his Ph.D. on a tangible interface for toddlers with language disabilities, called LinguaBytes, which frequently featured at TEI. His research was awarded “Best Doctoral Research” of the year at his department. His research interests are in tangibles for learning, in designing for systems, and in interactive music. Bart has been involved in the TEI community since the first conference in Baton Rouge, presenting and demoing his work in 2007, 2008, 2009, 2013, 2015 and 2016 and has reviewed for every TEI conference to date. For TEI’08 and TEI’09 he contributed to the house style, including design of the TEI’08 proceedings cover. For TEI’16 he was Program Co-Chair. Since 2016 Bart is a member of the TEI Steering Committee.

ARTS AND PERFORMANCE CHAIR

Byron Lahey received his Master of Fine Arts degree from Arizona State University, and his Bachelor of Fine Arts degree from the University of Northern Iowa. Both of these degrees were completed with an emphasis in Sculpture. He is currently a PhD candidate in the School of Arts, Media and Engineering in the Herberger Institute for Design and the Arts at Arizona State University. His research focuses on the relationship between form and function in the space where physical and digital systems converge. Byron has worked as a professional sculptor and multimedia artist in fine arts and commercial realms and has taught a wide range of arts, design and engineering courses. Additionally, he has served as a faculty member and technician in ASU’s sculpture department, and he often works as a programmer, consultant, fabricator and engineer.

DEMO ARRANGEMENT CHAIR

Piyum Fernando is a PhD student at the School of Arts, Media, and Engineering at Arizona State University. His work spans human computer interaction, computer engineering and design research. Prior to joining ASU he worked as a research engineer at Augmented Human Lab at Singapore University of Technology and Design. He is passionate in designing digital systems that are embodied into physical world entities and fluidly blended with human social behaviors.