



**Association for
Computing Machinery**

Advancing Computing as a Science & Profession

Draft NEWS RELEASE

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ANYTIME, ANYWHERE, ANY DEVICE COMPUTING TAKES CENTER STAGE AT MAJOR CONFERENCE

UbiComp 2018, Leading Showcase for Innovations that Bridge Digital and Physical Worlds, to Open in Singapore on October 8

New York, NY, September 26, 2018 – The Association for Computing Machinery (ACM) will hold the annual [ACM International Joint Conference on Pervasive and Ubiquitous Computing \(UbiComp 2018\)](#) from October 8-12 in Singapore. UbiComp is the premier venue for presenting research in the design, development, and deployment of ubiquitous computing systems. Researchers and practitioners will explore the latest innovations across a broad range of technologies, from mobile phones to sensors and the Internet of Things (IoT) to wearable computers and futuristic new technologies.

UbiComp takes the pulse of one of the fastest-growing areas of technology, as ubiquitous technologies increasingly permeate daily life. For example, according to GSMA, a mobile industry organization, the number of mobile phone subscriptions around the world reached 5 billion in 2017, up from 4 billion in 2013.

“In today’s world, ubiquitous computing reaches into nearly every corner of our world and continues to improve the way we innovate, communicate, and live our lives,” said Rajesh K. Balan of Singapore Management University, General Co-chair of UbiComp 2018. “We’ve come a long way from the days when, to access a computer, we had to schedule time on a computer that was so large it occupied an entire room. Now we carry our computers in our pockets, on our wrists, or even on our clothing. We are always connected. The inventions and findings on display at UbiComp represent the most cutting-edge developments in this widely influential and rapidly emerging field.”

2018 ACM UBICOMP HIGHLIGHTS

Keynote Speakers

Iniquitous Computing?

Kentaro Toyama, University of Michigan, MIT

As technology has continued to advance in its capabilities, sophistication, and scope, so too has the prevalence of ransomware, fake news, and other misappropriations of otherwise promising technology. In this keynote address, Professor Toyama will discuss lessons learned regarding the “Law of Amplification,” which explains much about society’s relationship with technology, as well as examine

whether the value of pervasive technological infrastructure is undercut by societal forces that threaten to abuse modern interconnectedness.

Modeling and Planning Urban Systems with Novel Data Sources

Marta Gonzalez, University of California, Berkeley

At present, the majority of urban mobility models – important in a wide range of applications – require costly undertakings, such as manual surveys, to aggregate sociodemographic information. Gonzalez will discuss new smart routing applications which can be deployed across major cities during mega events and dramatically reduce congestion.

Research Papers (Partial List)

What Makes Smartphone Use Meaningful or Meaningless?

Kai Lukoff, Julie Kientz, Alexis Hiniker, University of Washington; Cissy Yu, Brown University;

Why is it that certain smartphone use feels so meaningless? The authors examined this question by using interviews, the experience sampling method, and mobile logging of 86,402 sessions of app use. The authors found that one motivation for use (habitual use to pass the time) and two types of use (entertainment and passive social media) were associated with a lower sense of meaningfulness. In interviews, participants reported feeling a loss of autonomy when using their phone in these ways. The authors discuss implications for how mobile apps can be used and designed to reduce meaningless experiences.

The Role of Urban Mobility in Retail Business Survival

Krittika D'Silva, University of Cambridge; Kasthuri Jayarajah, Singapore Management University; Anastasios Noulas, New York University; Cecilia Mascolo, University of Cambridge and The Alan Turing Institute; Archan Misra, Singapore Management University

Economic and urban planning agencies have strong interest in tackling the hard problem of predicting the odds of survival of individual retail businesses. In this work, the authors tap urban mobility data available both from a location-based intelligence platform, Foursquare, and from public transportation agencies, and investigate whether mobility-derived features can help foretell the failure of such retail businesses, over a 6 month horizon, across 10 distinct cities spanning the globe. The authors demonstrate that classifiers trained on such features can predict such survival with high accuracy, achieving approximately 80% precision and recall across the cities.

Charging a Smartphone Across a Room Using Lasers

Vikram Iyer, Elyas Bayat, Rajalakshmi Nandakuma, Arka Majumdar, Shyamnath Gollakota, University of Washington

The authors demonstrate a novel laser-based wireless power delivery system that can charge mobile devices such as smartphones across a room. They also demonstrate the safety and security of their laser-based power delivery system.

SignFi: Sign Language Recognition Using WiFi

Yongsen Ma, Gang Zhou, Shuangquan Wang, Hongyang Zhao, and Woosub Jung, College of William and Mary

According to the World Federation of the Deaf (WFD), there are 70 million deaf people using sign language as their first language. Many hearing people also use sign language as their first or second language. In the US alone, there are between 500,000 and 2 million people using American Sign Language (ASL). The authors introduce SignFi, which is designed to recognize sign language gestures

using WiFi. SignFi uses Channel State Information (CSI) measured by WiFi packets as the input and a Convolutional Neural Network (CNN) as the classification algorithm. Existing WiFi-based sign gesture recognition technologies are tested on no more than 25 gestures that only involve hand and/or finger gestures. SignFi is able to recognize 276 sign gestures, which involve the head, arm, hand, and finger gestures, with high accuracy.

Research Posters (Partial List)

- TanCreator: A Tangible Tool for Children to Create Augmented Reality Games
- Reconstruction of Travel Movies Using Emotional Arcs
- Exploring Situation-aware Dynamic Message Screening for Mobile Messengers
- RADAR-base: A Novel Open Source m-Health Platform

Workshops (Partial List)

WELLCOMP '18: 1st International Workshop on Computing for Well-Being

While recent advances in ubiquitous computing have been found to contribute to better quality of life - in the form of wearable medical devices, location-based sensory applications, and more - there is also an abundance of research showing that the same technologies can also create new types of stress and pain simultaneously. In this inaugural workshop, active research in various UbiComp research areas (such as systems, mobile / wearable sensing, persuasive apps, behavior change, HCI, and more) will be assessed comprehensively to derive big-picture conclusions from different viewpoints about the state of "computing for well-being."

CLAW: 4th Workshop on Legal and Technical Issues in Cloud and Pervasive Computing (IoT)

As we move toward realizing the broader visions of ubiquitous and pervasive computing, so too do we see technology subjected to increasing public commentary, political scrutiny, and regulatory attention. Regulatory and governance regimes such as GDPR have begun to establish precedence regarding end-user rights and developer responsibilities, adding further complexity to the maze of technological and legal considerations demanding observation. CLAW 2018 will facilitate an interdisciplinary exploration of the challenges of emerging technology, with a particular focus on its increasing pervasiveness.

Ubiquitous Chatbots: Workshop on Wearable and Embodied Conversational Agents

Computer-human interaction (CHI) is progressively shifting toward natural language communication determining the rise of conversational agents, and today it is increasingly common to talk to home assistants, to interact with a smart environment, or to write to chatbots to access an online service. This workshop aims to bring together researchers from academia with those in industry to establish a multidisciplinary community invested in exploring future challenges and opportunities in CHI.

Co-Located Event

UbiComp 2018 is co-located with the 22nd annual International Symposium on Wearable Computers ([ISWC 2018](#)). ISWC is the premier event for wearable computing and technology, and issues related to on-body and worn mobile technologies. The symposium brings together researchers, product vendors, fashion designers, textile manufacturers, users, and related professionals to share information and advances in wearable computing.

About UbiComp

[The ACM International Joint Conference on Pervasive and Ubiquitous Computing \(UbiComp\)](#), is a premier venue for presenting research in the design, development, deployment, evaluation and understanding of ubiquitous computing systems, including pervasive, wireless, embedded, wearable and mobile technologies, to bridge the gaps between the digital and physical worlds. UbiComp brings together top researchers and practitioners who are interested in both the technical and applied aspects of ubiquitous computing. UbiComp is sponsored by the ACM Special Interest Group on Mobility of Systems, Users, Data and Computing (SIGMOBILE) and the ACM Special Interest Group on Computer-Human Interaction (SIGCHI).

About ACM

[ACM, the Association for Computing Machinery](#), is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

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