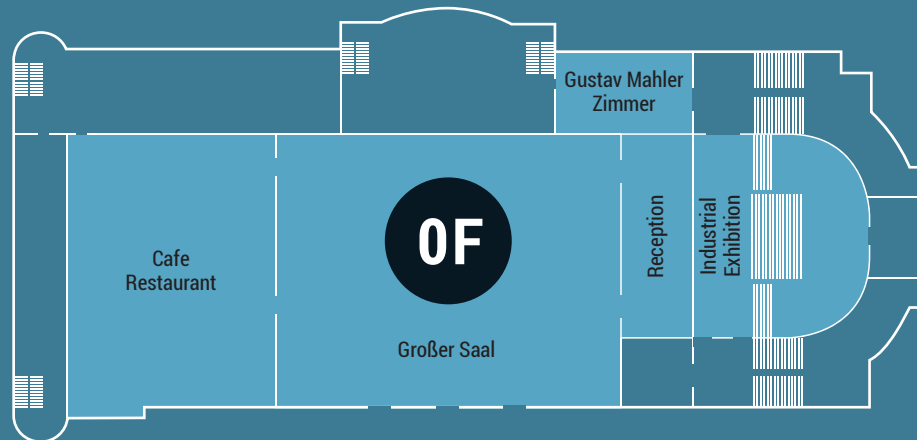
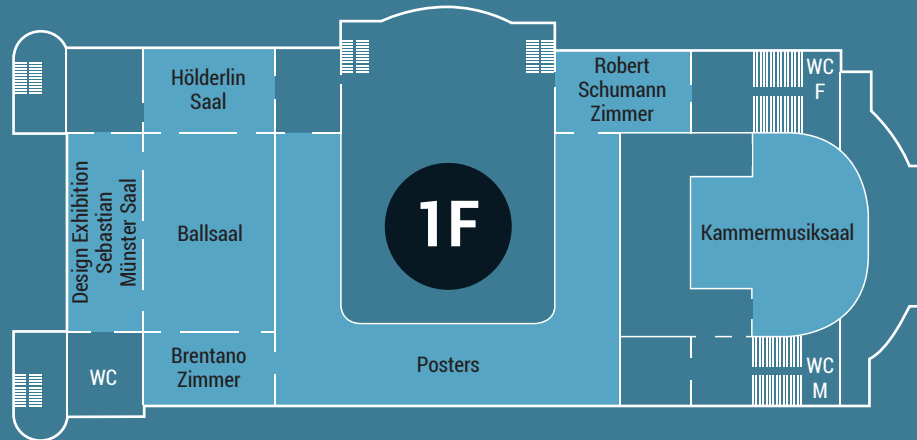
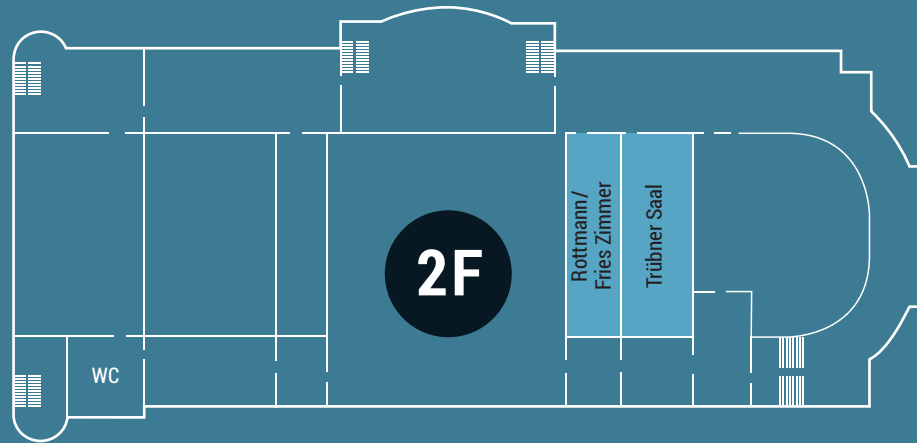


ISWC 2016
UBICOMP 2016
SEPT, 12-16



HEIDELBERG / GERMANY



PROGRAM AT A GLANCE

MONDAY MORNING

Workshop	Room
W8 → UnderWare	Gustav Mahler Zimmer
W5 → HASCA	Kammermusiksaal
W11 → IOPH	Robert Schumann Zimmer
W7 → WearablesForSports	Ballsaal
W1 → Quantified Self	Sebastian Münster Saal
W2 → UBIMI	Hölderlin Saal
W4 → WAE0 W3 → IOT Horizons	Rottmann/Fries Zimmer
W10 → WAHM	Trübner Saal
W6 → UbiMount	External Location Kletterhalle

TUESDAY MORNING

Workshop	Room
W21 → PETMEI	Gustav Mahler Zimmer
W19 → Ubittention	Kammermusiksaal
W16 → PURBA	Robert Schumann Zimmer
W12 → MentalHealthAndWellbeing	Ballsaal
Doctoral School	Sebastian Münster Saal
W18 → MobileMuseum	Hölderlin Saal
W20 → Tangible Interaction With Light in the IOT	Rottmann/Fries Zimmer
W15 → VLSU	Trübner Saal
W14 → HotPlanet	Brentano Zimmer

MONDAY AFTERNOON

Workshop	Room
W8 → UnderWare	Gustav Mahler Zimmer
W5 → HASCA	Kammermusiksaal
W11 → IOPH	Robert Schumann Zimmer
W7 → WearablesForSports	Ballsaal
W1 → Quantified Self	Sebastian Münster Saal
W2 → UBIMI	Hölderlin Saal
W4 → WAE0 W3 → IOT Horizons	Rottmann/Fries Zimmer
W10 → WAHM	Trübner Saal
W6 → UbiMount	External Location Kletterhalle
W9 → BodySenseUX	Brentano Zimmer

TUESDAY AFTERNOON

Workshop	Room
W21 → PETMEI	Gustav Mahler Zimmer
W19 → Ubittention	Kammermusiksaal
W16 → PURBA	Robert Schumann Zimmer
W12 → MentalHealthAndWellbeing	Ballsaal
Doctoral School	Sebastian Münster Saal
W17 → WMSC	Hölderlin Saal
W13 → Smarticipation	Rottmann/Fries Zimmer
W15 → VLSU	Trübner Saal
W22 → EyeWear	Brentano Zimmer

BALLSAAL	GROSSER SAAL	KAMMERMUSIKSAAL	TRÜBNER SAAL
----------	--------------	-----------------	--------------

WEDNESDAY, 14TH

09:00 ↓ 10:30		Keynote Dirk Helbing		
Coffee Break				
11:00 ↓ 12:30	Opening & Fabrics, Textiles, and Skin Made Smart	Activity Recognition	Supporting the Visually and Motoric Impaired	Living in Smart Homes
Lunch Break				
14:00 ↓ 15:30	Wearables in Healthcare, in Wellbeing & Minute Madness	Unobtrusive Sensing and Feedback	Indoor Localisation	Interaction Using the Hands and Eyes
Coffee Break				
16:00 ↓ 17:30	Wearables in Motion	UbiComp in Education	Sensing Walking	Leveraging the Crowd
20:00	Gadget Show, Design Exhibition, Poster/Demo, Reception			

THURSDAY, 15TH

09:00 ↓ 10:30		Joint Plenary		
Coffee Break				
11:00 ↓ 12:30	Activity Recognition and Sensing	Sound and Audio	User and Behaviour Modelling and Prediction I	Security and Privacy I
Lunch Break				
14:00 ↓ 15:30	Industry Session I	Health I	User and Behavior Modelling and Prediction II	Security and Privacy II
Coffee Break				
16:00 ↓ 17:30	Industry Session II	UbiComp in Transportation	Sensing and Using Emotion	Supporting Physically Active Lifestyle
22:00	Banquet, Social Event			

FRIDAY, 16TH

09:00 ↓ 10:30		Keynote Rosalind Picard		
Coffee Break				
11:00 ↓ 12:30	Haptic Feedback	Health II	Images, Videos, and AR	Power Saving Techniques for Mobile Computing
Lunch Break				
14:00 ↓ 15:30	Interaction	Predictive Analytics	Urban Sensing	Sensing with Smartphones and Wearables
Coffee Break				
16:00 ↓ 17:30	Extended Realities & Closing	Real-World Navigation and Exploration	Sustainable UbiComp	Notifications and Scheduling
18:30	Townhall Meeting			

ISWC 2016
UBICOMP 2016
ORGANIZING
COMMITTEE



UBICOMP SESSIONS ORGANIZING COMMITTEE

General Chairs

Paul Lukowicz, DFKI
and University of
Kaiserslautern, DE

Antonio Krüger, DFKI and
Saarland University, DE

TPC Chairs

Andreas Bulling, Max
Planck Institute for
Informatics, DE

Youn-Kyung Lim, KAIST, KO

Shwetak N. Patel, University
of Washington, US

Workshop Chair

Albrecht Schmidt,
University of Stuttgart, DE

Jamie A. Ward, DFKI, DE

Student Volunteer Chair

Miriam Greis, University
of Stuttgart, DE

Jonathan Day, City
University London, UK

Poster Chair

Daniel Roggen, University
of Sussex, UK

Yu Enokibori, Nagoya
University, JP

Demo Co-Chair

Jinguyan Cheng,
TU Braunschweig, DE

Koichi Kise, Osaka
Prefecture University, JP

Doctoral Colloquium Chair

Rene Mayrhofer, JKU Linz, AT

Max Mühlhäuser,
TU Darmstadt, DE

Nadir Weibel, University of
California, San Diego, US

Publications Chair

Florian Daiber, DFKI, DE

Local Arrangement Chair

Gerald Pirkel, DFKI, DE

Financial Chair

Christian Olczak, DFKI, DE

Industrial Relations Chairs

Christian Bürgy, h_da, DE

Holger Kenn, Microsoft, DE

Publicity & Web Chair

Marco Speicher, DFKI, DE

TPC Chairs

Andreas Bulling, Max
Planck Institute for
Informatics, DE

Youn-Kyung Lim, KAIST, KO

Shwetak N. Patel, University
of Washington, US

TPC Members

Frank Bentley, Yahoo, US

Susanne Boll, University
of Oldenburg, DE

A.J. Brush, Microsoft
Research, US

Ke-Yu Chen, Intel, US

Jingyuan Cheng, DFKI
Kaiserslautern, DE

Eun Kyoung Choe, Pennsylv-
ania State University, US

Tanzeem Choudhury,
Cornell University, US

James Crowley, INRIA
Grenoble Rhones-Alpes
Research Centre, FR

Alexander De Luca,
Google, CH

Anind K. Dey, Carnegie
Mellon University, US

Lucy Dunne, University of
Minnesota, US

Christos Efstratiou,
University of Kent, UK

Daniel Gatica-Perez, EPFL, CH

Hans Gellersen, Lancaster
University, UK

Mayank Goel, University of
Washington, US

Tao Gu, RMIT University, AU

Sidhant Gupta, Microsoft
Research, US

Ehsan Hoque, University
of Rochester, US

Eva Hornecker, Bauhaus-
Universität Weimar, DE

Elaine Huang, University
of Zurich, CH

Giulio Jacucci, University
of Helsinki, FI

Peter Kiefer, ETH Zurich, CH

Vassilis Kostakos,
University of Oulu, FI

Santosh Kumar, University
of Memphis, US

Nicholas Lane, University
College London and Bell
Labs, UK

Marc Langheinrich, Univer-
sità della Svizzera Italiana, CH

Eric Larson, Southern
Methodist University, US

Min Kyung Lee, Carnegie
Mellon University, US

Uichin Lee, KAIST, KO

Yang Li, Google, US

Qin Lv, University of
Colorado Boulder, US

Lena Mamykina, Columbia
University, US

Paul Marshall, University
College London, UK

Cecilia Mascolo, University
of Cambridge, UK

Rene Mayrhofer, Johannes
Kepler University Linz, AT

Hamid McHeick, Université
du Québec à Chicoutimi, CA

Mirco Musolesi, University

College London, UK

Lama Nachman, Intel, US

Jin Nakazawa, Keio
University, JP

Ian Oakley, UNIST, KO

Nuria Oliver, Telefonica
Research, ES

Taiwoo Park, Michigan State
University, US

Wen-Chih Peng, National
Chao Tung University, TW

Thomas Ploetz, Newcastle
University, UK

Daniel Roggen, University
of Sussex, UK

Michael Rohs, University
of Hannover, DE

Silvia Santini, TU Dresden, DE

Dominique Schroeder,
Saarland University, DE

Katie Siek, Indiana
University, US

Stephan Sigg, Aalto
University, FI

Junehwa Song, KAIST, KO

Yusuke Sugano, Max Planck
Institute for Informatics, DE

Monica Tentori, CICESE, MX

Edison Thomaz, The Univer-
sity of Texas at Austin, US

Khai Truong, University
of Toronto, CA

Kristof van Laerhoven,
University of Freiburg, DE

John Vines, Newcastle
University, UK

Xing Xie, Microsoft
Research Asia, CN

Shengdong Zhao, National
University of Singapore, SG

John Zimmerman, Carnegie
Mellon University, US

ISWC SESSIONS ORGANIZING COMMITTEE

General Chairs

Michael Beigl, Karlsruhe
Institute of Technology, DE

Paul Lukowicz, University
of Kaiserslautern, DE

Program Chairs

Ulf Blanke, ETH, CH

Kai Kunze,
Keio University, JP

Seungyon Claire Lee,
Google, US

Local Chair

Anja Exler, Karlsruhe
Institute of Technology, DE

Till Riedel, Karlsruhe
Institute of Technology, DE

Industry Program and Liason Chairs

Holger Kenn, Microsoft, DE
Christian Buergy,
Hochschule Darmstadt, DE

Design Exhibition Chair

James Hallam, Georgia
Institute of Technology, US

Publicity Chair

Anja Exler, Karlsruhe
Institute of Technology, DE

Gadget Show Chairs

Gregory Abowd,
Georgia Tech, US

Björn Eskofier, Friedrich
Alexander University
Erlangen-Nürnberg, DE

Demo Chairs

Koichi Kise, Osaka
Prefecture University, JP

Jingyuan Cheng, TU
Braunschweig, DE

Workshop Chairs

Jamie A. Ward, DFKI, DE
Albrecht Schmidt,
University of Stuttgart, DE

Financial Chair

Christian Olczak,
DFKI, DE

Student Volunteer Chair

Jonathan Day, City
University London, UK

Miriam Greis, University
of Stuttgart, DE

Program Committee

Asim Smailagic, Carnegie
Mellon University, US

Bernt Schiele, MPI
Saarbrücken, DE

Björn Eskofier, University
of Erlangen-Nuremberg, DE

Dan Siewiorek, Carnegie
Mellon University, US

Daniel Rye, University
of Sussex, UK

Dawud Gordon,
TwoSense Inc., US

Fahim Kawsar,
Bell Labs, BE

Hiroyuki Manabe, NTT
DOCOMO, JP

Holger Kenn, Microsoft
EMIC, DE

Jennifer Healey,
Intel Labs, US

Jingyuan Cheng, TU
Braunschweig, DE

Kai Kunze,
Keio University, JP

Kenji Mase, Nagoya
University, JP

Kent Lyons,
Technicolor, US

Kristof van Laerhoven,
University of Freiburg, DE

Liwei Chan, Keio
University, JP

Louis Atallah, Philips
Research, NL

Lucy Dunne, University
of Minnesota, US

Mark Billingham,
University of Canterbury, NZ

Mark T. Smith, Royal Inst. of
Technology (KTH), SW

Masaaki Fukumoto,
Microsoft Research, CN

Michael Beigl, Karlsruhe
Inst. of Technology, DE

Oliver Amft, Univeristy
of Passau, DE

Ozan Cakmakci,
Google, US

Paul Lukowicz, DFKI
Kaiserslautern, DE

Roshan Peiris, Keio
University, JP

Ross T. Smith, University
of South Australia, AU

Seungyon »Claire« Lee,
Google, US

Thad Starner, Georgia
Tech, US

Thomas Ploetz, University
of Newcastle, UK

Tom Martin,
Virginia Tech, US

Tsutumo Terada, Kobe
University, JP

Ulf Blanke, ETH Zurich, CH

Walterio Mayol-Cuevas,
University of Bristol, UK



TO THE SOCIAL EVENT ON WEDNESDAY

Walking through the city centre to the mountain railway station

- Travel time: 13 mins; distance: 1.1 km
- From the conference building, cross the street »Untere Neckarstraße« in front of the building and enter the street »Karpfengasse«.
- Walk up the street about 50 meter until you reach the main shopping street »Hauptstraße«.
- Turn left and head eastward about 750 meter until you reach an open plaza on your right side, the »Kornmarkt«.
- Turn right, crossing through the Kornmarkt. After the Kornmarkt you will reach the street »Burgweg«.
- Follow »Burgweg« until you see a large building in front of you that contains a parking garage and the »Hotel am Schloss«, as well as the entrance to the mountain railway station »Heidelberger Bergbahn«.

By bus to the mountain railway station

- Travel time: 10 mins
- Leaving the conference building »Stadthalle« towards the river, head eastbound to the bus stop.
- Get on bus RNV 35, direction »Neckargmünd«.
The bus runs every 20 minutes.
- After 4 minutes on bus RNV 35, exit at stop »S-Bf. Altstadt«.
- Now get on bus RNV 33, direction »Emmertersgrund«.
- After 4 minutes exit at stop »Rathaus/Bergbahn«.
- The building in front of you when looking towards the hill contains a parking garage and the »Hotel am Schloss«, as well as the entrance to the mountain railway station »Heidelberger Bergbahn«.

From the mountain railway station to the conference social event (Schloss) via mountain railway

- Travel time: 2 mins
- Enter the mountain railway station using the railway card included in your conference bag.
- Exit at the next station »Schloss«.
- You will be directed to the social event.

ISWC
SESSIONS
UBICOMP
SESSIONS



ISWC SESSIONS WEDNESDAY, 14TH

BALLSAAL

OPENING & FABRICS, TEXTILES, AND SKIN MADE SMART

11:00



12:30

Opening

Grabbing at an Angle: Menu Selection for Fabric Interfaces

Nur Al-huda Hamdan, Jeffrey R. Blum, Florian Heller, Ravi Kanth Kosuru, Jan Borchers

Interactex: An Integrated Development Environment for Smart Textiles

Juan Haladjian, Katharina Bredies, Bernd Brügge

DuoSkin: Rapidly Prototyping On-Skin User Interfaces Using Skin-Friendly Materials

Hsin-Liu Cindy Kao, Christian Holz, Asta Roseway, Andres Calvo, Chris Schmandt

WEARABLES IN HEALTHCARE, IN WELLBEING, AND BEYOND

14:00



15:10

Multi-Modal Wearable Ambient Display: An Investigation of Continuous Glucose Monitoring

Jordyn Reich, Lucy E Dunne

Experiences Measuring Sleep and Physical Activity Patterns Across a Large College Cohort With Fitbits

Rachael Purta, Stephen Mattingly, Lixing Song, Omar Lizardo, David Hachen, Christian Poellabauer, Aaron Striegel

MoodLens: Restoring Non-Verbal Communication with an In-Lens Fiber Optic Display

Angela Vujic, Thad Starner, Melody Jackson

A Survey of the Historical Scope and Current Trends of Wearable Technology Applications

Mary Ellen Berglund, Julia Duvall, Lucy E Dunne

MINUTE MADNESS FOR BRIEFS

15:10



15:30

Wearable Beach Volleyball Serve Type Recognition

Luis Ponce Cuspinera, Sakura Uetsuji, Javier Ordonez, Daniel Roggen

A Generic Sensor Fabric for Multi-modal Swallowing Sensing in Regular Upper-body Shirts

Rui Zhang, Martin Freund, Oliver Amft, Jingyuan Cheng, Bo Zhou, Paul Lukowicz, Fernando Seoane, Peter Chabreck

Virtual Food Texture by Electrical Muscle Stimulation

Arinobu Nijjima, Takefumi Ogawa

ISWC SESSIONS WEDNESDAY, 14TH

BALLSAAL

Bite Glasses – Measuring Chewing Using EMG and Bone Vibration in Smart Eyeglasses

Rui Zhang, Oliver Amft

**On-Body Ambient Electric Field Strength and Phase Sensing:
a New Wearable Modality for Localisation Applications**

Daniel Roggen, Arash Pouryazdan, Francisco Javier Ordonez Morales, Helen Prance, Robert Prance

Wearable System for Reducing Anxiety while Interacting with the Robots

Stefan Brending, Ali Mahmood Khan, Michael Lawo, Maik Müller, Patrick Zeising

Input Interface Using Wrinkles on Clothes

Kentaro Ueda, Tsutomu Terada, Masahiko Tsukamoto

Wearable Ambient Sound Display: Embedding Information in Personal Music

George Chernyshov, Benjamin Tag, Jiajun Chen, Noriyasu Votin, Paul Lukowicz, Kai Kunze

Charting the Design Space and User Preferences on Wearable Visual Markers

Jonna Häkkinen, Juho Rantakari, Paula Roinesalo, Ashley Colley

**A System for Determining which Player Touches a Card first using a Wrist-worn Sensor in
Competitive Karuta**

Hiroshi Yamada, Kazuya Murao, Tsutomu Terada, Masahiko Tsukamoto

WEARABLES IN MOTION

16:00



17:30

Smart Soccer Shoe: Monitoring Foot-Ball Interaction with Shoe Integrated Textile Pressure Sensor Matrix

Bo Zhou, Markus Wirth, Christine Martindale, Harald Koerger, Constantin Zwick, Heber Cruz,
Bjoern Eskofier, Paul Lukowicz

Ball Impact Localization on Table Tennis Rackets using Piezo-electric Sensors

Peter Blank, Thomas Kautz, Bjoern Eskofier

Your Personal Movie Producer: Generating Highlight Videos in Soccer Using Wearables

Dominik Schuldhaus, Carolin Jakob, Constantin Zwick, Harald Koerger, Bjoern M. Eskofier

An Analysis of the Variability of Anatomical Body References within Ready-to-Wear Garment Sizes

Linsey Griffin, Crystal Compton, Lucy E Dunne

ISWC SESSIONS THURSDAY, 15TH

BALLSAAL

ACTIVITY RECOGNITION AND SENSING

11:00

Deep Convolutional Feature Transfer Across Mobile Activity Recognition Domains, Sensor Modalities and Locations

→

Javier Ordonez, Daniel Roggen

12:30

Creating Collar-sensed Motion Gestures for Dog-Human Communication in Service Applications

Giancarlo Valentin, Joelle Alcainho, Ayanna Howard, Melody Jackson, Thad Starner

GestureSleeve: Using Touch Sensitive Fabrics for Gestural Input on the Forearm for Controlling Smart Watches

Stefan Schneegass, Alexandra Voit

RSVP on the Go – Implicit Reading Support on Smart Watches Through Eye Tracking

Tilman Dingler, Rufat Rzayev, Valentin Schwind, Niels Henze

INDUSTRY SESSION I

14:00

Best Practice in Wearable Industrial Projects

Hendrik Witt, Ubimax

→

Context-aware Personal Health Assistance (Pha)

Esteban Bayro Kaiser, wearhealth

15:30

Hololens Cloud Driven Industrial Applications

Damit Dobric, daenet

INDUSTRY SESSION II

16:00

Breakthroughs and Challenges of a Wearable Hardware (Solution) Provider

Tony Havelka, Tek Gear

→

Windows Holographic

Holger Kenn, Microsoft

17:30

Industry Panel

ISWC SESSIONS FRIDAY, 16TH

BALLSAAL

HAPTIC FEEDBACK

11:00

Skin Reading: Encoding Text in a 6-Channel Haptic Display

Granit Luzhnica, Eduardo Veas, Viktoria Pammer

→

Exploring the Design Space of Touch-based Vibrotactile Interactions for Smartwatches

Hasti Seifi, Kent Lyons

12:30

Tactile Taps Teach Rhythmic Text Entry: Passive Haptic Learning of Morse Code

Caitlyn Seim, saul Reynolds-Haertle, Sarthak Srinivas, Thad Starner

RüttelFlug – A Wrist-Worn Sensing Device for Tactile Vertical Velocity Perception in 3D-Space

Erik Pescara, Michael Beigl, Matthias Budde

INTERACTION

14:00

Whoosh: Non-Voice Acoustics for Low-Cost, Hands-Free, and Rapid Input on Smartwatches

Gabriel Reyes, Dingtian Zhang, Sarthak Ghosh, Pratik Shah, Jason Wu, Aman Parnami, Bailey Bercik, Thad Starner, Gregory D. Abowd, W. Keith Edwards

→

Circular Selection: Optimizing List Selection for Smartwatches

Katrin Plaumann, Michael Müller, Enrico Rukzio

15:30

WatchOut: Extending Interactions on a Smartwatch with Inertial Sensing

Cheng Zhang, Junrui Yang, Caleb Southern, Thad Starner, Gregory Abowd

A Comparison of Order Picking Methods Augmented with Weight Checking Error Detection

Xiaolong Wu, Malcolm Haynes, Anhong Guo, Thad Starner

EXTENDED REALITIES & CLOSING

16:00

2D Input for Virtual Reality Enclosures with Magnetic Field Sensing

Kent Lyons

→

EyeContact: Scleral Coil Eye Tracking for Virtual Reality

Eric Whitmire, Laura Trutoiu, Robert Cavin, David Perek, Brian Scally, James O Phillips, Shwetak Patel

17:30

Controlling Virtual Body Size to Reduce Discomfort Caused by Inappropriate Interpersonal Distance

Masaki Maeda, Tominaga Tomu, Yoshinori Hijikata, Nobuchika Sakata

UBICOMP SESSIONS WEDNESDAY, 14TH

GROSSER SAAL

KAMMERMUSIKSAAL

TRÜBNER SAAL

11:00



12:30

ACTIVITY RECOGNITION

Unsupervised Recognition of Interleaved Activities of Daily Living through Ontological and Probabilistic Reasoning
Daniele Riboni, Timo Sztyler, Gabriele Civitarese, Heiner Stuckenschmidt

Learning from Less for Better: Semi-Supervised Activity Recognition via Shared Structure Discovery
Lina Yao, Feiping Nie, Quan Z. Sheng, Tao Gu, Xue Li, Sen Wang

Human Respiration Detection with Commodity WiFi Devices: Do User Location and Body Orientation Matter?
Hao Wang, Daqing Zhang, Junyi Ma, Yasha Wang, Yuxiang Wang, Dan Wu, Tao Gu, Bing Xie

A Weakly Supervised Activity Recognition Framework for Real-time Synthetic Biology Laboratory Assistance
Chandrashekhar Lavania, Sunil Thulasidasan, Anthony LaMarca, Jeffrey Scofield, Jeff Bilmes

SUPPORTING THE VISUALLY AND MOTOR IMPAIRED

UniPass: Design and Evaluation of a Smart Device-Based Password Manager for Visually Impaired Users
Natā M Barbosa, Jordan K Hayes, Yang Wang

Finding a Store, Searching for a Product: A Study of Daily Challenges of Low Vision People
Sarit F. A. Szpiro, Yuhang Zhao, Shiri Azenkot

CueSee: Exploring Visual Cues for People with Low Vision to Facilitate a Visual Search Task
Yuhang Zhao, Sarit Szpiro, Jonathan Knighten, Shiri Azenkot

Situational Impairments to Mobile Interaction in Cold Environments
Zhanna Sarsenbayeva, Jorge Goncalves, Juan García, Simon Klakegg, Sirkka Rissanen, Hannu Rintamäki, Jari Hannu, Vassilis Kostakos

LIVING IN SMART HOMES

Selecting Home Appliances with Smart Glass based on Contextual Information
Quan Kong, Takuya Maekawa, Taiki Miyanishi, Takayuki Suyama

AirSense: An Intelligent Home-based Sensing System for Indoor Air Quality Analytics
Biyi Fang, Qiumin Xu, Taiwoo Park, Mi Zhang

It's like living with a friendly stranger: Perceptions of Personality Traits in a Smart Home
Sarah Mennicken, Oliver Zihler, Frida Juldasczewa, Veronika Molnar, David Aggeler, Elaine Huang

TableTalk: Integrating Personal Devices and Content for Commensal Experiences at the Family Dinner Table
Hasan Shahid Ferdous, Bernd Ploderer, Hilary Davis, Frank Vetere, Kenton O'Hara, Jeremy Farr-Wharton, Rob Comber

UBICOMP SESSIONS WEDNESDAY, 14TH

GROSSER SAAL

KAMMERMUSIKSAAL

TRÜBNER SAAL

14:00



15:30

UNOBTRUSIVE SENSING AND FEEDBACK

Exploring the Design Space of Glanceable Feedback for Physical Activity Trackers
Rúben Gouveia, Fábio Pereira, Evangelos Karapanos, Sean A. Munson, Marc Hassenzähl

Verifiable Smart Packaging with Passive RFID
Ge Wang, Chen Qian, Jinsong Han, Wei Xi, Han Ding, Zhiping Jiang, Jizhong Zhao

Device-free Detection of Approach and Departure Behaviors using Backscatter Communication
Han Ding, Chen Qian, Jinsong Han, Ge Wang, Zhiping Jiang, Jizhong Zhao, Wei Xi

Cognitive Rhythms: Unobtrusive and Continuous Sensing of Alertness Using a Mobile Phone
Saeed Abdullah, Elizabeth Murnane, Mark Matthews, Matthew Kay, Julie Kientz, Geri Gay, Tanzeem Choudhury

Passive and Contactless Epidermal Pressure Sensor Printed with Silver Nanoparticle Ink
Takahiro Hashizume, Takuya Sasatani, Koya Narumi, Yoshiaki Narusue, Yoshihiro Kawahara, Tohru Asami

INDOOR LOCALISATION

Dynamic-MUSIC: Accurate Device-Free Indoor Localization
Xiang Li, Shengjie Li, Daqing Zhang, Jie Xiong, Yasha Wang, Hong Mei

Indoor Localization via Multi-Modal Sensing on Smartphones
Han Xu, Zheng Yang, Zimu Zhou, Longfei Shasngguan, Ke Yi, Yunhao Liu

Predicting Location Semantics Combining Active and Passive Sensing with Environment-independent Classifier
Masaya Tachikawa, Takuya Maekawa, Yasuyuki Matsushita

Towards Area Classification for Large-scale Fingerprint-based System
Suining He, Jiajie Tan, S.-H. Gary Chan

Efficient Calibration for RSSI-based Indoor Localization by Bayesian Experimental Design on Multi-task Classification
Masamichi Shimosaka, Osamu Saisho

INTERACTING USING THE HANDS AND EYES

WiFinger: Talk to Your Smart Devices with Finger-grained Gesture
Hong Li, Wei Yang, Jianxin Wang, Yang Xu, Liusheng Huang

Accuracy of Interpreting Pointing Gestures in Egocentric View
Deepak Akkil, Poika Isokoski

TextPursuits: Using Text for Pursuits-Based Interaction and Calibration on Public Displays
Mohamed Khamis, Ozan Saltuk, Alina Hang, Katharina Stolz, Andreas Bulling, Florian Alt

UbiTouch: Ubiquitous Smartphone TouchPads using Built-in Proximity and Ambient Light Sensors
Elliott Wen, Winston Seah, Bryan Ng, Xuefeng Liu, Jiannong Cao

TraceMatch: a Computer Vision Technique for User Input by Tracing of Animated Controls
Christopher Clarke, Alessio Bellino, Augusto Esteves, Eduardo Velloso, Hans Gellersen

UBICOMP SESSIONS WEDNESDAY, 14TH

GROSSER SAAL

KAMMERMUSIKSAAL

TRÜBNER SAAL

16:00



17:30

UBICOMP IN EDUCATION

TalkLIME: Mobile System Intervention to Improve Parent-Child Interaction for Children with Language Delay
Seokwoo Song, Seugno Kim, John Kim, Wonjeong Park, Dongsun Yim

EDUM: Classroom Education Measurements via Large-scale WiFi Networks
Mengyu Zhou, Minghua Ma, Yangkun Zhang, Kaixin Sui, Dan Pei, Thomas Moscibroda

Collective Use of a Fabric-based Interactive Surface to Support Early Development in Toddler Classrooms
Franceli L. Cibrian, Nadir Weibel, Monica Tentori

Apps to Measure Motor Skills of Vocational Workers
Bhanu Pratap Singh Rawat, Varun Aggarwal

SENSING WALKING

WiDir: Walking Direction Estimation Using Wireless Signals
Dan Wu, Daqing Zhang, Chenren Xu, Yasha Wang, Hao Wang

Gait Recognition Using WiFi Signals
Wei Wang, Alex X. Liu, Muhammad Shahzad

Exploiting Cyclic Features of Walking for Pedestrian Dead Reckoning with Unconstrained Smartphones
Baoqi Huang, Guodong Qi, Xiaokun Yang, Long Zhao, Han Zou

iKneeBraces: Knee Adduction Moment Evaluation Measured by Motion Sensors in Gait Detection
Hsin-Ruey Tsai, Shih-Yao Wei, Jui-Chun Hsiao, Ting-Wei Chiu, Yi-Ping Lo, Chi-Feng Keng, Yi-Ping Hung, Jin-Jong Chen

LEVERAGING THE CROWD

TASKer: Behavioral Insights via Campus-based Experimental Mobile Crowd-sourcing
Thivya Kandappu, Nikita Jaiman, Randy Tandriansyah, Archan Misra, Shih-Fen Cheng, Cen Chen, Hoong Chuin Lau, Deepthi Chander, Koustuv Dasgupta

TaskMe: Multi-Task Allocation in Mobile Crowd Sensing
Yan Liu, Bin Guo, Yang Wang, Wenle Wu, Zhiwen Yu, Daqing Zhang

Sensus: A Cross-Platform, General-Purpose System for Mobile Crowdsensing in Human-Subject Studies
Haoyi Xiong, Yu Huang, Laura E. Barnes, Matthew S. Gerber

The Night is Young: Urban Crowdsourcing of Nightlife Patterns
Darshan Santani, Joan-Isaac Biel, Florian Labhart, Jasmine Truong, Sara Landolt, Emmanuel Kuntsche, Daniel Gatica-Perez

UBICOMP SESSIONS THURSDAY, 15TH

	GROSSER SAAL	KAMMERMUSIKSAAL	TRÜBNER SAAL
	SOUND AND AUDIO	USER AND BEHAVIOR MODELING AND PREDICTION I	SECURITY AND PRIVACY I
11:00 → 12:30	WalkieLokie: Sensing Relative Positions of Surrounding Presenters by Acoustic Signals Wenchao Huang, Xiang-Yang Li, Yan Xiong, Panlong Yang, Yiqing Hu, Xufei Mao, Fuyou Miao, Baohua Zhao, Jumin Zhao Automated Estimation of Food Type and Amount Consumed from Body-worn Audio and Motion Sensors Mark Mirtchouk, Christopher Merck, Samantha Kleinberg WritingHacker: Audio based Eavesdropping of Handwriting via Mobile Devices Tuo Yu, Haiming Jin, Klara Nahrstedt AudioGest: Enabling Fine-Grained Hand Gesture Detection by Decoding Echo Signal Wenjie Ruan, Quan Z. Sheng, Lei Yang, Tao Gu, Peipei Xu, Longfei Shangguan	Modelling Smartphone Usage: A Markov State Transition Model Vassilis Kostakos, Denzil Ferreira, Jorge Goncalves, Simo Hosio Discovering Different Kinds of Smartphone Users Through Their Application Usage Behaviors Sha Zhao, Julian Ramos, Jianrong Tao, Ziwen Jiang, Shijian Li, Zhaohui Wu, Gang Pan, Anind K. Dey The Potential of Physical Motion Cues: Changing People's Perception of Robots Performance Pedro Garcia Garcia, Jhim Kiel M. Verame, Enrico Costanza, Sarvapali Ramchurn Differentiating Smartphone Users by App Usage Pascal Welke, Ionut Andone, Konrad Błazskiewicz, Alexander Markowetz	Privacy-friendly Photo Capturing and Sharing System Lan Zhang, Kebin Liu, Xiang-Yang Li, Cihang Liu, Xuan Ding, Yunhao Liu Loca: A Location-Oblivious Co-location Attack in Crowds Roberto Pasqua, Matthieu Roy, Gilles Tredan PrivCheck: Privacy-Preserving Check-in Data Publishing for Personalized Location Based Services Dingqi Yang, Daqing Zhang, Bingqing Qu, Philippe Cudré-Mauroux A Data Hiding Approach for Sensitive Smartphone Data Chu Luo, Angelos Fylakis, Juha Partala, Simon Klakegg, Jorge Goncalves, Kaitai Liang, Tapio Seppänen, Vassilis Kostakos

UBICOMP SESSIONS THURSDAY, 15TH

	GROSSER SAAL	KAMMERMUSIKSAAL	TRÜBNER SAAL
	HEALTH I	USER AND BEHAVIOR MODELING AND PREDICTION II	SECURITY AND PRIVACY II
14:00	Design and Learnability of Vortex Whistles for Managing Chronic Lung Function via Smartphones Spencer A Kaiser, Ashley M Parks, Patrick B Leopard II, Charlie A Albright, Damoun Nassehi, Mayank Goel, Jake Carlson, Eric Larson	Engagement-Aware Computing: Modelling User Engagement with Mobile Contexts Akhil Mathur, Nicholas D. Lane, Fahim Kawsar	Touch-And-Guard: Secure Pairing Through Hand Resonance Wei Wang, Lin Yang, Qian Zhang
→		Why Would You Do That? Predicting the Uses and Gratifications Behind Smartphone-Usage Behaviors Alexis Hiniker, Shwetak N. Patel, Tadayoshi Kohnno, Julie A. Kientz	PERUIM: Understanding Mobile Application Privacy with Permission-UI Mapping Yuanchun Li, Yao Guo, Xiangqun Chen
15:30	Exploring Glass as a novel method for hands-free data entry in flexible cystoscopy. Charles Templeman, Javier Ordonez, Andrew Symes, Daniel Roggen	Cooperative Phoneotypes: Exploring Phone-based Behavioral Markers of Cooperation Vivek Singh, Rishav Agarwal	Location Privacy for Crowdsourcing Applications Ioannis Boutsis, Vana Kalogeraki
	HemaApp: Noninvasive Blood Screening of Hemoglobin using Smartphone Cameras Edward Jay Wang, William Li, Doug Hawkins, Terry Gernsheimer, Colette Norby-Slycord, Shwetak N Patel	Exploring Space Syntax on Entrepreneurial Opportunities with Wi-Fi Analytics Afra Mashhadi, Utku Gunay G. Acer, Aidan Boran, Philipp Scholl, Claudio Forlivesi, Fahim Kawsar	mSieve: Differential Behavioral Privacy in Time Series of Mobile Sensor Data Nazir Saleheen, Supriyo Chakraborty, Nasir Ali, Md Mahbubur Rahman, Syed Monowar Hossain, Rummana Bari, Mani Srivastava, Eugene Buder, Santosh Kumar
	LumiO: A Plaque-aware Toothbrush Takuma Yoshitani, Masa Ogata, Koji Yatani		
	Using Passively Collected Sedentary Behavior to Predict Hospital Readmission Sangwon Bae, Anind K. Dey, Carissa A Low		

UBICOMP SESSIONS THURSDAY, 15TH

	GROSSER SAAL	KAMMERMUSIKSAAL	TRÜBNER SAAL
	UBICOMP IN TRANSPORTATION	SENSING AND USING EMOTION	SUPPORTING PHYSICALLY ACTIVE LIFESTYLE
16:00	CityCoupling: Bridging Intercity Human Mobility Zipei Fan, Xuan Song, Ryosuke Shibasaki, Tao Li, Hodaka Kaneda	EmotionCheck: Leveraging Bodily Signals and False Feedback to Regulate our Emotions Jean Costa, Alexander T. Adams, Malte F. Jung, Francois Guimbretiere, Tanzeem Choudhury	Exploring User Experiences of Active Workstations: A Case Study of Under Desk Elliptical Trainers Woohyeok Choi, Aejin Song, Darren Edge, Masaaki Fukumoto, Uichin Lee
→			
17:30	DESTPRE : A Data-Driven Approach to Destination Prediction for Taxi Rides Mengwen Xu, Dong Wang, Jian Li Is Only One GPS Position Sufficient to Locate You to The Road Network Accurately? Hao Wu, Weiwei Sun, Baihua Zheng CityProphet: City-scale irregularity prediction using transit app logs Tatsuya Konishi, Mikiya Maruyama, Kota Tsubouchi, Masamichi Shimosaka	Learning from the Ubiquitous Language: an Empirical Analysis of Emoji Usage of Smartphone Users Xuan Lu, Wei Ai, Xuanzhe Liu, Qian Li, Ning Wang, Gang Huang, Qiaozhu Mei An Affect Detection Technique using Mobile Commodity Sensors in the Wild Aske Mottelson, Kasper Hornbaek Shining (Blue) Light on Creative Ability Saeed Abdullah, Mary Czerwinski, Gloria Mark, Paul Johns	Technology meets Adventure: Learnings from an Earthquake-Interrupted Mt. Everest Expedition Florian Mueller, Sarah Jane Pell Reconsidering the Device in the Drawer: Lapses as a Design Opportunity in Personal Informatics Daniel A Epstein, Jennifer H. Kang, Laura R Pina, James Fogarty, Sean A Munson Dynamic Cluster-Based Over-Demand Prediction in Bike Sharing Systems Longbiao Chen, Daqing Zhang, Leye Wang, Dingqi Yang, Xiaojuan Ma, Shijian Li, Zhaohui Wu, Gang Pan, Thi-Mai-Trang Nguyen, Jeremie Jakubowicz

UBICOMP SESSIONS FRIDAY, 16TH

GROSSER SAAL

KAMMERMUSIKSAAL

TRÜBNER SAAL

HEALTH II

IMAGES, VIDEOS AND AR

POWER SAVING TECHNIQUES FOR MOBILE COMPUTING

11:00



12:30

Spotting Prejudice with Nonverbal Behaviours

A. Palazzi, S. Calderara, N. Bico-
cchi, L. Vezzali, G. Antonio Di Ber-
nardo, R. Cucchiara, F. Zambonelli

mCrave: Continuous Estimation of Craving During Smoking Cessation

S. Chatterjee, K. Hovsepan,
H. Sarker, N. Saleheen, M. al'Absi,
G. Atluri, E. Ertin, C. Lam,
A. Lemieux, M. Nakajima,
B. Spring, D. Wetter, S. Kumar

Domain Adaptation Methods for Improving Lab-to-field Generali- zation of Cocaine Detection using Wearable ECG

A. Natarajan, G. Angarita, E. Gaiser,
R. Malison, D. Ganesan, B. Marlin

CrossCheck: Toward passive sensing and detection of mental health changes in people with schizophrenia

R. Wang, M. S. H. Aung, S. Abdullah,
D. Ben-Zeev, R. Brian, A. T. Camp-
bell, T. Choudhury, M. Hauser, J.
Kane, M. Merrill, E. Scherer, V.
Wen-Sheng Tseng

Assessing Social Anxiety Using GPS Trajectories and Point-Of-Interest Data

Y. Huang, H. Xiong, K. Leach,
Y. Zhang, P. Chow, K. Fua,
B. A. Teachman, L. E. Barnes

ARTcode: Preserve Art and Code In Any Image

Zhe Yang, Yuting Bao, Chuhao
Luo, Xingya Zhao, Siyu Zhu,
Chunyi Peng, Yunxin Liu,
Xinbing Wang

Tell Me What I See: Recognize RFID Tagged Objects in Augmented Reality Systems

Lei Xie, Jianqiang Sun, Qingliang
Cai, Chuyu Wang, Jie Wu,
Sanglu Lu

ROC Comment: Automated Descriptive and Subjective Captioning of Behavioral Videos

Mohammad Rafayet Ali, Facundo
Ciancio, Ru Zhao, Iftekhar Naim,
Ehsan Hoque

Interactive Worker Assistance: Comparing the Effects of In-Situ Projection, Head-Mounted Displays, Tablet, and Paper Instructions

Markus Funk, Thomas Kosch,
Albrecht Schmidt

SpotGarbage: Smartphone App to Detect Garbage Using Deep Learning

Gaurav Mittal, Kaushal B Yagnik,
Mohit Garg, Narayanan C.
Krishnan

PADA: Power-aware Development Assistant for Mobile Sensing Applications

Chulhong Min, Seungchul Lee,
Changhun Lee, Youngki Lee,
Seungwoo Kang, Seungpyo Choi,
Wonjung Kim, Junehwa Song

Crowdsensing-based Smart- phone Use Guide for Battery Life Extension

Yohan Chon, GwangMin Lee,
Rhan Ha, Hojung Cha

GreenTouch: Transparent energy management for cellular data radios

Shravan Aras, Chris Gniady

AFV: Enabling Application Function Virtualization and Scheduling in Wearable Networks

Harini D Kolamunna, Yining Hu,
Diego Perino, Kanchana
Thilakarathna, Dwight Makaroff,
Xinlong Guan, Aruna Seneviratne

UBICOMP SESSIONS FRIDAY, 16TH

GROSSER SAAL

KAMMERMUSIKSAAL

TRÜBNER SAAL

14:00



15:30

PREDICTIVE ANALYTICS

Test-Time Feature Ordering with FOCUS: Interactive Predictions with Minimal User Burden

Kirstin Early, Stephen E. Fienberg, Jennifer Mankoff

Looking Back on the Current Day: Interruptibility Prediction Using Daily Behavioral Features

Minsoo Choy, Daehoon Kim, Jae-Gil Lee, Heeyoung Kim, Hiroshi Motoda

Predicting room occupancy with a single passive infrared (PIR) sensor through behavior extraction

Yordan Raykov, Emre Ozer, Ganesh Dasika, Alexis Boukouvalas, Max A Little

Predicting User Error for Ambient Systems by Integrating Model-based UI Development and Cognitive Modeling

Marc Halbrugge, Michael Quade, Klaus-Peter Engelbrecht, Sebastian Moller, Sahin Albayrak

URBAN SENSING

Urban Sensing Based on Human Mobility

Shenggong Ji, Yu Zheng, Tianrui Li

Characterizing the Life Cycle of Point of Interests Using Human Mobility Patterns

Xinjiang Lu, Zhiwen Yu, LeiLei Sun, Chuanren Liu, Hui Xiong, Chu Guan

Context-aware Real-time Population Estimation for Metropolis

Fengli Xu, Jie Feng, Pengyu Zhang, Yong Li

Spatially Fine-grained Urban Air Quality Estimation Using Ensemble Semi-supervised Learning and Pruning

Ling Chen, Yaya Cai, Yifang Ding, Mingqi Lv, Cuili Yuan, Gencai Chen

SENSING WITH SMART- PHONES AND WEARABLES

Toward Practical Factory Activity Recognition:

Unsupervised Understanding of Repetitive Assembly Work in a Factory

Takuya Maekawa, Daisuke Nakai, Kazuya Ohara, Yasuo Namioka

Enabling On-Body Transmissions with Commodity Devices

Mehrdad Hesar, Vikram Iyer, Shyamnath Gollakota

Wearable Sensor based Multimodal Human Activity Recognition Exploiting the Diversity of Classifier Ensemble

Haodong Guo, Ling Chen, Liangying Peng, Gencai Chen

µEMA: Microinteraction-based Ecological Momentary Assessment (EMA) Using a Smartwatch

Stephen Intille, Caitlin Haynes, Dharam Maniar, Aditya Ponnada, Justin Manjourides

UBICOMP SESSIONS FRIDAY, 16TH

GROSSER SAAL

KAMMERMUSIKSAAL

TRÜBNER SAAL

REAL-WORLD NAVIGATION AND EXPLORATION

SUSTAINABLE UBICOMP

NOTIFICATIONS AND SCHEDULING

16:00



17:30

Lets Not Stare at Smartphones while Walking: Memorable Route Recommendation by Detecting Effective Landmarks

Shoko Wakamiya, Hiroshi Kawasaki, Yukiko Kawai, Adam Jatowt, Eiji Aramaki, Toyokazu Akiyama

ALPS: Accurate Landmark Positioning at City Scales

Yitao Hu, Xiaochen Liu, Suman Nath, Ramesh Govindan

AutoLabel: Labeling Places from Pictures and Websites

Rufeng Meng, Sheng Shen, Romit Roy Choudhury, Srihari Nelakuditi
Probing the Interconnections Between Geo-Exploration and Information Exploration Behavior

Dongho Choi, Chirag Shah, Vivek Singh

How Does Eco-Coaching Help to Save Energy? Assessing a Recommendation System for Energy-Efficient Thermostat Scheduling

Rayoung Yang, Devika Pisharoty, Soodeh Montazeri, Kamin Whitehouse, Mark W Newman

FORCES: Feedback and Control for Occupants to Refine Comfort and Energy Savings

Daniel A Winkler, Alex Beltran, Niloufar P Esfahani, Paul P. Maglio, Alberto E Cerpa

Genie: A Longitudinal Study Comparing Physical and Software Thermostats in Office Buildings

Bharathan Balaji, Jason Koh, Nadir Weibel, Yuvraj Agarwal

ThermalSense: Determining Dynamic Thermal Comfort Preferences using Thermographic Imaging

Juhi Ranjan, James Scott

PrefMiner: Mining User's Preferences for Intelligent Mobile Notification Management

Abhinav Mehrotra, Robert Hendley, Mirco Musolesi

Context-aware Application Scheduling in Mobile Systems: What Will Users Do and Not Do Next?

Joohyun Lee, Kyunghan Lee, Euijin Jeong, Jaemin Jo, Ness B. Shroff

A Contextual Collaborative Approach for App Usage Forecasting

Yingzi Wang, Nicholas Jing Yuan, Yu Sun, Fuzheng Zhang, Xing Xie, Qi Liu, Enhong Chen

In-Situ Investigation of Notifications in Multi-Device Environments

Dominik Weber, Alexandra Voit, Philipp Kratzer, Niels Henze



SPONSORS & SUPPORTERS

GROSSER SAAL

KAMMERMUSIKSAAL

TRÜBNER SAAL

Silver Sponsors



Bronze Sponsors



Supporters



