



IEEE PerCom 2017 Program

Conference Registration

Kaleiopapa Convention Center Foyer

Registration hours are:

Sunday, March 12: from 5:00 pm to 7:30 pm

Monday, March 13: from 8:00 am to 3:00 pm

Tuesday, March 14: from 7:30 am to 3:00 pm

Wednesday, March 15: from 8:00 am to 3:00 pm

Thursday, March 16: from 8:00 am to 1:00 pm

Friday, March 17: from 8:00 am to 11:00 am

Sponsors:



Workshop Locations at a Glance

Monday, March 13, Pre-conference Workshops

Workshop name:	Room:
CASPer (The Fourth International Workshop on Crowd Assisted Sensing, Pervasive Systems and Communications)	Hualalai
CoMoRea (The Thirteenth Workshop on Context and Activity Modeling and Recognition)	Keauhou I
PerHealth (The Second IEEE PerCom Workshop on Pervasive Health Technologies)	Keauhou III
PerIoT (The First International Workshop on Mobile and Pervasive Internet of Things)	Keauhou II
PerLS (The First International Workshop on Pervasive Smart Living Spaces)	Keauhou IV
SPT-IOT (The Second IEEE PerCom Workshop On Security Privacy And Trust In The Internet of Things)	Mauna Loa
WristSense (The Third IEEE International Workshop on Sensing Systems and Applications Using Wrist Worn Smart Devices)	Mauna Kea
PhD Forum Training	Keauhou Boardroom

Friday, March 17, Post-conference Workshops

Workshop name:	Room:
IQ2S (The 8th International Workshop on Information Quality and Quality of Service for Pervasive Computing)	Keauhou Boardroom
ARDUOUS (First International Workshop on Annotation of useR Data for UbiquitOUS Systems)	Keauhou IV
BICA (First IEEE International Workshop on Behavioral Implications of Contextual Analytics)	Hualalai
DAMN (Workshop on Data Analytics for Mobile Networking)	Mauna Loa
EmotionAware (The 1st Workshop on emotion awareness for pervasive computing with mobile and wearable devices)	Mauna Kea
SmartEdge (The First International Workshop on Smart Edge Computing and Networking)	Keauhou III

Monday, March 13, Pre-conference Workshops

Morning coffee break: 10:00 am – 10:30 am

Foyer

Afternoon coffee break: 2:45 pm – 3:15 pm

Foyer

Lunch: 12:00 pm – 1:15 pm

Rays on the Bay Restaurant

The Fourth International Workshop on Crowd Assisted Sensing, Pervasive Systems and Communications (CASPer)

Location: Hualalai

CASPer-Keynote

- 9:00 am - 10:00 am Chair: **Salil S Kanhere** (The Univ. of New South Wales, AU)
CAK. **Human Factors in Crowd-Assisted Sensing**, Delphine Reinhardt (University of Bonn and Fraunhofer FKIE, Germany)

CASPer-S1 - Positioning and Crowd Detection

10:30 am - 12:00 pm

- CA1. **Deep-Crowd-Label: A Deep-Learning based Crowd-Assisted System for Location Labeling**, Mo Mahdi Moazzami, Jasvinder Singh and Vijay Srinivasan (Samsung Research America, USA); Guoliang Xing (Michigan State Univ., USA)
CA2. **Extracting Point of Interest and Classifying Environment for Low Sampling Crowd Sensing Smartphone Sensor Data**, Billy Pik Lik Lau, Marakkalage Hasala and Sanjana Viswanath (SG U of Tech. and Design, SG); Thirunavukarasu Balasubramaniam (Queensland U of Tech., AU); Chau Yuen and Belinda Yuen (SG U. of Tech. and Design, SG); Nayak Richi (Queensland U. of Tech., AU)
CA3. **Towards a Crowdsourced Radio Map for Indoor Positioning System**, Ran Guan and Robert Harle (University of Cambridge, United Kingdom)
CA4. **Crowd and Event Detection by Fusion of Camera Images and Micro Blogs**, Sohei Kojima, Akira Uchiyama, Masumi Shirakawa, Akihito Hiromori, Hirozumi Yamaguchi and Teruo Higashino (Osaka University, Japan)

CASPer-S2- Privacy, Role-Assignment and Visualization

1:15 pm – 2:45 pm

- CA5. **An Aggregation and Visualization Technique for Crowdsourced Continuous Monitoring of Transport Infrastructures**, Fatjon Seraj, Nirvana Meratnia and Paul Havinga (University of Twente, The Netherlands)
CA6. **Effective Role-Assignment for Participatory Sensing Systems**, Anubhuti Garg (University of Ottawa, Canada); Amiya Nayak (SITE, University of Ottawa, CA)
CA7. **Privacy in Context-aware Mobile Crowdsourcing Systems**, Thivya Kandappu, Archan Misra, Shih-Fen Cheng, and Hoong Chuin Lau (SMU, Singapore)
CA8. **An Open Framework for Flexible Plug-in Privacy Mechanisms in Crowdsensing Applications**, Manos Katsomallos (U. of Cergy-Pontoise, FR); Spyros Lalis (U. of Thessaly, GR); Thanasis Papaioannou (Center for Research and Technology Hellas, GR); George Theodorakopoulos (Cardiff University, UK)

CASPer-S3 - Panel

3:15 pm – 4:15 pm

The Second IEEE PERCOM Workshop On Security Privacy And Trust In The Internet of Things (SPT-IOT)

Location: Mauna Loa

SPT-IOT-Keynote

8:50 am – 10:00 am

- SPK. **Ethics and Legal Considerations in the Internet of Things (IoT)**, Helaine Leggat (Information Legal, Australia)

SPT-IOT-S1: IoT Infrastructure Security

10:30 am – 12:00 pm

- SP1. **Toward Consumer-Friendly Security in Smart Environments**, Ruth Ogunnaike (U. of Washington, USA); Brent Lagesse (U. of Washington Bothell, USA)
- SP2. **Blockchain for IoT Security and Privacy: The Case Study of a Smart Home**, Ali Dorri and Salil S Kanhere (The University of New South Wales, AU); Raja Jurdak (Commonwealth Scientific and Industrial Research Organisation (CSIRO), AU); Praveen Gauravaram (Tata Consultancy Services, Hyderabad, IN)
- SP3. **Portguard - An Authentication Tool for Securing Ports in an IoT Gateway**, Shiju Sathyadevan (Amrita Vishwa Vidyapeetham, IN); Robin Doss (Deakin U., AU); V Vejesh (Amrita University, IN); Lei Pan (Deakin University, AU)

SPT-IOT-S2: IoT Security Techniques & Methods

1:15 pm – 2:45 pm

- SP4. **Preventing Shoulder Surfing using Randomized Augmented Reality Keyboards**, Anindya Maiti, Murtuza Jadliwala and Chase Weber (Wichita State University, USA)
- SP5. **Shortening the Security Parameters in Lightweight WSN Applications for IoT - Lessons Learned**, Anna Sojka-Piotrowska (IHP, Germany); Peter Langendoerfer (IHP Microelectronics, Germany)
- SP6. **A Novel Key Generation Algorithm from Twitter Data Stream for Secure Communication in IoT**, Pratham Majumder (Indian Statistical Institute, India); Koushik Sinha (Southern Illinois University, USA)

SPT-IOT-S3: IoT Security and Trust

3:15 pm – 4:15 pm

- SP7. **A PUF Sensor: Securing Physical Measurements**, Hua Ma and Yansong Gao (The University of Adelaide, Australia); Omid Kavehei (RMIT University, Australia); Damith C. Ranasinghe (The University of Adelaide, Australia)
- SP8. **TM-Coin: Trustworthy Management of TCB Measurements in IoT**, Jaemin Park (The Affiliated Institute of ETRI, Korea); Kwangjo Kim (Korea Advanced Institute of Science and Technology, Korea)

PhD Forum training (internal workshop for PhD Forum authors only)

Location: Keauhou Boardroom

1:30 pm – 4:30 pm

Chair: **Daniela Nicklas** (University of Bamberg, Germany),
George Roussos (University of London, UK)

The 13th Workshop on Context and Activity Modeling and Recognition (CoMoRea)

Location: **Keauhou I**

CoMoRea-Keynote

9:00 am – 10:00 am Chair: **Christian Becker** (Universität Mannheim, Germany)
CRK. **Social Context Modelling and Recognition: Current Work and Future Directions**, Jiannong Cao (Hong Kong Polytechnic Univ, Hong Kong)

CoMoRea-S1: Context-Awareness

10:30 am- 12:00 pm Chair: **Christian Becker** (Universität Mannheim, Germany)
CR1. **Smartphone-based Mobile Gunshot Detection**, David Welsh and Nirmalya Roy (University of Maryland Baltimore County, USA)
CR2. **Context-Based Conflict Management in Pervasive Platforms**, Rania Ben Hadj (LIG & Orange, France); Catherine Hamon (Orange, France); Stéphanie Chollet and German Vega (LIG, France); Philippe Lalanda (Grenoble University, France)
CR3. **A self-aware approach to context management in pervasive platforms**, Eva Gerbert-Gaillard, Jérémie Demarchez, Philippe Lalanda, and Stéphanie Chollet (Université Grenoble Alpes - LCIS, Valence, France)

CoMoRea-S2: Activity-Recognition and Modeling

2:15 pm – 2:45 pm Chair: **Peizhao Hu** (Rochester Institute of Technology, USA)
CR4. **Using Change Point Detection to Automate Daily Activity Segmentation**, Samaneh Aminikhanghahi and Diane J. Cook (Washington State University, USA)
CR5. **Detecting Physical Collaborations in a Group Task Using Body-Worn Microphones and Accelerometers**, Jamie A Ward (DFKI, United Kingdom); Paul Lukowicz and Gerald Pirkel (DFKI and University of Kaiserslautern, DE); Peter Hevesi (German Research Center for Artificial Intelligence (DFKI), DE)
CR6. **Non-wearable UWB Sensor to Detect Falls in Smart Home Environment**, Ghassem Mokhtari (CSIRO, Australia); Qing Zhang (CSIRO ICT Centre, Australia); Amir Fazlollahi (CSIRO, Australia)

CoMoRea-S3: Activity-Recognition and Modeling – cont.

3:15 pm – 3:45pm Chair: **Peizhao Hu** (Rochester Institute of Technology, USA)
CR7. **Detecting spontaneous collaboration in dynamic group activities from noisy individual activity data**, Agnes Grünerbl and Gernot Bahle (DFKI, Germany); Paul Lukowicz (DFKI and University of Kaiserslautern, Germany)

CoMoRea-S4: Special Track Pervasive Energy Services (PerEnergy)

3:45 pm – 5:00 pm Chairs: **Frank Dürr** (University of Stuttgart, DE),
Delphine Reinhardt (Univ. of Bonn and Fraunhofer FKIE, DE)
CR8. **How Many Watts: A Data Driven Approach to Aggregated Residential Air-Conditioning Load Forecasting**, Clement Lork (Singapore University of Technology and Design & 3M, Singapore); Batchu Rajasekhar (Indian Institute of Technology Gandhinagar, India); Chau Yuen (Singapore University of Technology and Design, Singapore); Naran M. Pindoriya (IIT Gandhi Nagar, IN)
CR9. **Cost-Aware Virtual Machine Allocation for Off-Grid Green Data Centers**, Tingting Zhu (Southeast University, P.R. China); Hai Wang (Saint Mary's University, Canada); Haikun Wei (Southeast University, P.R. China)

The Second IEEE PerCom Workshop on Pervasive Health Technologies (PerHealth)

Location: Keauhou III

PerHealth-S1: Welcome To PerHealth 2017

9:00 am – 9:05 am Chair: **Manfred Huber** (The Univ. of Texas at Arlington, USA)

PerHealth-Keynote

9:05 am – 10:00 am Chair: **Manfred Huber** (The Univ. of Texas at Arlington, USA)

PHK. **Personal Data Protection in Pervasive Health Systems**, Claudio Bettini (University of Milan, Italy)

PerHealth-S2: Intelligent Environments and Interfaces

10:30 am – 12:00 pm Chair: **Manfred Huber** (The Univ. of Texas at Arlington, USA)

PH1. **EyeAssist: A Communication Aid through Gaze Tracking for Patients with Neuro-Motor Disabilities**, Anvesha Khasnobish, Rahul Gavas, Debatri Chatterjee, Ved Raj, and Sapna Naitam (Tata Consultancy Services, India)

PH2. **Monitoring Objects Manipulations to Detect Abnormal Behaviors**, Gabriele Civitarese and Claudio Bettini (University of Milan, Italy)

PH3. **SmartCare: an Introduction**, Gergely Záruba, Manfred Huber, Nicholas Brent Burns, and Kathryn Daniel (The University of Texas at Arlington, USA)

PerHealth-S3: Technologies for Nutrition Monitoring

1:30 – 3:00 pm Chair: **Manfred Huber** (The Univ. of Texas at Arlington, USA)

PH4. **SwallowNet: Recurrent Neural Network Detects and Characterizes Eating Patterns**, Dzung Tri Nguyen, Nabil Alshurafa and Eli Cohen (Northwestern University, USA)

PH5. **Investigating Barriers and Facilitators to Wearable Adherence in Fine-Grained Eating Detection**, Rawan Alharbi, Nilofar Vafaie, Kitty Liu, Kevin Moran, Gwendolyn Ledford, Angela Pfammatter, Bonnie Spring and Nabil Alshurafa (Northwestern University, USA)

PH6. **Swallowing Detection for Game Control: Using Skin-Like Electronics to Support People with Dysphagia**, Benjamin Nicholls (University of Kent, United Kingdom); Yongkuk Lee and Woon Yeo (Virginia Commonwealth University, USA); Chee Ang and Christos Efstratiou (University of Kent, United Kingdom)

PerHealth-S4: Sensors and Systems

3:30 – 5:00 pm Chair: **Gergely Záruba** (The Univ. of Texas at Arlington, USA)

PH7. **Smart Cushion: A Practical System for Fine-grained Sitting Posture Recognition**, Guanqing Liang, Jiannong Cao, and Xuefeng Liu (The Hong Kong Polytechnic University, Hong Kong)

PH8. **Measuring Changes in Gait and Vehicle Transfer Ability During Inpatient Rehabilitation with Wearable Inertial Sensors**, Gina Sprint, Vladimir Borisov, and Diane J. Cook (Washington State University, USA); Douglas Weeks (St. Luke's Rehabilitation Institute, USA)

PH9. **ActivityAware: An App for Real-Time Daily Activity Level Monitoring on the Amulet Wrist-Worn Device**, George Boateng, Ryan Halter, John Batsis, and David Kotz (Dartmouth College, USA)

The First International Workshop on Mobile and Pervasive Internet of Things (PerIoT)

Location: Keauhou II

PerIoT - Keynote

- 8:45 am – 10:00 am Chair: **Farzana Rahman** (James Madison University, USA)
PIK. **Pushing Down User Information to Enhance Smart Device System Design**, Dr. Gang Zhou (College of William and Mary, USA)

PerIoT-S1: IoT Applications

- 10:30 am – 12:00 am Chair: **Samy S. El-Tawab** (James Madison University, USA)
PI1. **Daily Living Activity Recognition with ECHONET Lite Appliances and Motion Sensors**, Kazuki Moriya, Eri Nakagawa, Manato Fujimoto, Hirohiko Suwa, and Yutaka Arakawa (Nara Inst. of Sci&Tech, JP); Aki Kimura and Satoko Miki (Mitsubishi Elec. Corp., JP); Keiichi Yasumoto (Nara Inst. of Sci&Tech, JP)
PI2. **Characterizing Road Segments Using Compass Sensors to Predict Approaching Bus Stops**, Danila Chenchik, Jia Chen, Stephen Yan, Shahriar Nirjon (University of North Carolina at Chapel Hill)
PI3. **A Wireless IoT System Towards Gait Detection in Stroke Patients**, AKM Jahangir, Alam Majumder Yosuf ElSaadany, Mohammed ElSaadany, Donald Ucci (Miami University, USA); Farzana Rahman (James Madison University, USA)
PI4. **Context-Aware and User-Centric Residential Energy Management**, Baris Aksanli (San Diego State University, USA); Jagannathan Venkatesh, Christine Chan, Alper Sinan Akyurek, and Tajana Simunic Rosing (UCSD, USA)

PerIoT-S2: Protocols and Services for IoT

- 1:15 pm – 2:45 pm
PI5. **Delay Tolerant Routing Protocol for Heterogeneous Marine Vehicular Mobile Ad-hoc Network**, Subhasri Dutttagupta (Tata Consultancy Svcs., IN); Maneesha Vinodini Ramesh; and Dhanesh Raj (Amrita VishwaVidyapeetham U., IN)
PI6. **Maximizing Coverage in Low-Power Wide-Area IoT Networks**, Alan Marchiori (Bucknell University, USA)
PI7. **The Hint Protocol: Using a Broadcast Method to Enable ID-free Data Transmission for Dense IoT Devices**, Yi Ren, Ren-Jie Wu, and Yu-Chee Tseng (National Chiao-Tung University, Taiwan)
PI8. **Large-scale Offloading in the Internet of Things**, Huber Flores, Xiang Su and Vassilis Kostakos (U. of Oulu, FI); Aaron Yi Ding (TU Munich, DE); Petteri Nurmi (Helsinki Inst. for Info. Tech., FI); Sasu Tarkoma (U. of Helsinki, FI); Pan Hui (Hong Kong U. of Sci&Tech., HK); Yong Li (Tsinghua U., P.R. China)

PerIoT-S3: Design and Analysis of IoT Components

- 3:15 pm – 4:30 pm Chair: **AKM Jahangir Alam Majumder** (Miami Univ., USA)
PI9. **RoCoSys: A Framework for Coordination of Mobile IoT Devices**, Christian Krupitzer, Martin Breitbach and Johannes Saal, and Christian “Der Pilot” Becker (U. of Mannheim, DE); Michele Segata and Renato Lo Cigno (U. of Trento, IT)
PI10. **Design and Verification of IEEE 802.11ah for IoT and M2M Applications**, Rami Akeela (Santa Clara University, USA); Yacoub Elziq (JimzuTech, USA)
PI11. **Data Analysis of Transit Systems Using low-cost IoT Technology**, Samy S. El-Tawab, Raymond Oram, Michael Garcia, and Chris Johns (James Madison University, USA); B. Brian Park (University of Virginia, USA)

The First Int'l Workshop on Pervasive Smart Living Spaces (PerLS)

Location: Keauhou IV

PerLS-S1: Smart Spaces

- 8:30 am – 10:00 am Chair: **Andreas Jacobsson** (Malmö University, Sweden)
- PL1. **The Smart Object Description Language: Modeling Interaction Capabilities for Self-Reflection**, Daniel Burmeister, Florian Burmann, and Andreas Schrader (University of Lübeck, Germany)
- PL2. **Understanding Ride-on-demand Service: Demand and Dynamic Pricing**, Suiming Guo (The Chinese U. of HK, HK); Yaxiao Liu (Shenzhou UCar, CN); Ke Xu (Tsinghua University, CN); Dah Ming Chiu (The Chinese U. of HK, HK)
- PL3. **Integration of Smart Home Technologies for District Heating Control in Pervasive Smart Grids**, Radu-Casian Mihailescu (Malmö University, Sweden); Paul Davidsson (Malmö University, Sweden)

PerLS-S2: Identification Systems

- 10:30 am – 12:00 pm Chair: **Nirmalya Roy** (Univ. of Maryland Baltimore County, USA)
- PL4. **Personal Identification System Based on Rotation of Toilet Paper Rolls**, Masaya Kurahashi (Kobe University, Japan); Kazuya Murao (Ritsumeikan University, JP); Tsutomu Terada and Masahiko Tsukamoto (Kobe University, JP)
- PL5. **The Carpet Knows: Identifying People in a Smart Environment from a Single Step**, Bo Zhou (German Research Center for AI, DE); Monit Singh, Sugandha Doda and Muhammet Yildirim (TU Kaiserslautern, DE); Jingyuan Cheng (TU Braunschweig, DE); Paul Lukowicz (DFKI and University of Kaiserslautern, DE)
- PL6. **A User Identification Method Based on Features of Opening/Closing a Refrigerator Door**, Akane Ishida (Kobe U., JP); Kazuya Murao (Ritsumeikan U., JP); Tsutomu Terada and Masahiko Tsukamoto (Kobe University, JP)

PerLS-S3: Activity Recognition

- 1:00 pm – 2:00 pm Chair: **Paul Lukowicz** (DFKI and Univ. of Kaiserslautern, DE)
- PL7. **Toward Real-Time In-Home Activity Recognition Using Indoor Positioning Sensor and Power Meters**, Eri Nakagawa, Kazuki Moriya, Hirohiko Suwa, Manato Fujimoto, Yutaka Arakawa, and Keiichi Yasumoto (Nara Institute of Science and Technology, Japan)
- PL8. **TransAct: Transfer Learning Enabled Activity Recognition**, Md Abdullah Al Hafiz Khan and Nirmalya Roy (University of Maryland Baltimore County, USA)

PerLS-S4: Security in Smart Systems

- 2:00 pm – 3:00 pm Chair: **Kazuya Murao** (Ritsumeikan University, Japan)
- PL9. **Securing Vulnerable Home IoT Devices with an In-Hub Security Manager**, Anna Simpson, Franziska Roesner and Tadayoshi Kohno (U of Washington, USA)
- PL10. **An Analysis of Malicious Threat Agents for the Smart Connected Home**, Joseph Bugeja, Andreas Jacobsson and Paul Davidsson (Malmö University, SE)

PerLS-S5: Panel - Privacy Challenges in Pervasive Living Spaces

- 3:30 pm – 5:00 pm Moderator: **Mohan J Kumar** (Rochester Inst. of Technology, USA)
- PLP Panelists: Claudio Bettini, University of Milan, Italy
Paul Lukowicz (DFKI and University of Kaiserslautern, Germany)
“The Best Brent” Lagesse, (University of Washington, USA)
Delphine Reinhardt, (University of Bonn, Germany)

The Third IEEE International Workshop on Sensing Systems and Applications Using Wrist Worn Smart Devices (WristSense)

Location: Mauna Kea

WristSense-Keynote

9:00 am – 10:00 am

- WRK. **Wearable and IoT for Cognitive Health Assessment: Significance and Challenges**
Nirmalya Roy (University of Maryland Baltimore County, USA)

WristSense-S1: Health and Wellbeing

10:30 am – 12:00 pm

- WRK1. **HeatWatch: Preventing Heatstroke Using a Smart Watch**, Takashi Hamatani, Akira Uchiyama and Teruo Higashino (Osaka University, Japan)
- WRK2. **Using Wrist-worn Sensors to Measure and Compare Physical Activity Changes for Patients Undergoing Rehabilitation**, Jordana Dahmen (Washington State University, USA); Alyssa La Fleur (Whitworth University, USA); Gina Sprint and Diane J. Cook (Washington State University, USA); Douglas Weeks (St. Luke's Rehabilitation Institute, USA)
- WRK3. **UStress: Understanding College Student Subjective Stress Using Wrist-Based Passive Sensing**, Begum Egilmez, Emirhan Poyraz, Wenting Zhou, Gokhan Memik, Peter Dinda and Nabil Alshurafa (Northwestern University, USA)

WristSense-S2: Interaction and Activity Recognition

1:30 pm – 3:00 pm

- WRK4. **A Natural Language Query Interface for Searching Personal Information on Smartwatches**, Reza Rawassizadeh (Dartmouth College, USA); Chelsea Dobbins (Liverpool John Moores University, United Kingdom); Manouchehr Nourizadeh (Vienna University of Technology, Austria); Zahra Ghamchili (University of Vienna, Austria); Michael Pazzani (University of California, Riverside, USA)
- WRK5. **Inferring Smartphone KeyPress via Smartwatch Inertial Sensing**, Sougata Sen (Singapore Management University, Singapore); Karan Grover (Indraprastha Institute of Information Technology, Delhi, India); Vigneshwaran Subbaraju (NTU, Singapore); Archan Misra (Singapore Management University, Singapore)
- WRK6. **Single BSN-Based Multi-Label Activity Recognition**, Mohammad Alam and Nirmalya Roy (University of Maryland Baltimore County, USA)

WristSense-S3: Wrist-based Localization

3:30 pm – 4:30 pm

- WRK7. **InLocW: A Reliable Indoor Tracking and Guiding System for Smartwatches with Path Re-Routing**, Vivek Chandel (Tata Consultancy Services, India); Dibyanshu Jaiswal (Tata Consultancy Services Ltd., India); Avik Ghose (Tata Consultancy Services, India)
- WRK8. **Size Does Matter - Positioning on the Wrist A Comparative Study: SmartWatch vs. SmartPhone**, Gerold Hölzl and Matthias Kranz (University of Passau, Germany); Andreas Schmid, Peter Halbmayer and Alois Ferscha (Johannes Kepler University, Austria)

Tuesday, March 14

Conference Opening

Keauhou I

8:30 am – 8:45 am Chairs: **Claudio Bettini** (University of Milan, Italy),
Matt Mutka (Michigan State University, USA)

Keynote Lecture

Keauhou I

8:45 am – 09:45 am Chair: **Matt Mutka** (Michigan State University, USA)
K1. **Smarter Pervasive Computing, Hui Lei (IBM)**

Coffee/Tea Break

Foyer

09:45 am – 10:15 am

Session 1 – Smart Smartphones

Keauhou I

10:15 am – 12:00 pm Chair: **Petteri Nurmi** (Helsinki Inst. for Info. Technology HIIT, FI)

1A1. **VeinDeep: Smartphone Unlock using Vein Patterns**, Henry Zhong, Salil S Kanhere, and Chun Tung Chou (University of New South Wales, Australia)

1A2. **SecureHouse: A Home Security System Based on Smartphone Sensors**, Michael A Mahler, Qinghua Li and Ang Li (University of Arkansas, USA)

1A3. **FamilyLog: A Mobile System for Monitoring Family Mealtime Activities**, Chongguang Bi and Guoliang Xing (Michigan State University, USA); Hao Tian (IBM Research, USA); Jina Huh (University of California, San Diego, USA); Wei Peng and Mengyan Ma (Michigan State University, USA)

1A4. **Deep Learning Parkinson's from Smartphone Data**, Cosmin Stamate, George Magoulas, and Stefan Kueppers (Birkbeck College, UK); Effrosyni Nomikou (Audience Focus, UK); Ioannis Daskalopoulos (Birkbeck College, UK); Marco Luchini (Benchmark Performance, UK); Theano Moussouri (UCL, UK); George Roussos (Birkbeck College, University of London, UK)

Lunch

Rays on the Bay Restaurant

12:00 pm – 1:00 pm

PhD Forum Teaser Madness

Keauhou I

1:00 pm – 1:15 pm Chair: **Daniela Nicklas** (University of Bamberg, Germany),
George Roussos (University of London, UK)

Session 2 – From Networks to Crowds

Keauhou I

1:15 pm – 2:30 pm Chair: **Qi Han** (Colorado School of Mines, USA)

2A1. **Crowdsourcing Low-Power Wide-Area IoT Networks**, Keyi Zhang and Alan Marchiori (Bucknell University, USA)

2A2. **Prediction-based Redundant Data Elimination with Content Overhearing in Wireless Networks**, Haiying Shen (University of Virginia, USA); Shenghua He (Washington University in St. Louis, USA); Lei Yu (Georgia Institute of Technology, USA); Ankur Sarker (Clemson University, USA)

- 2A3. **Scalable Privacy-Preserving Participant Selection in Mobile Crowd Sensing**, Ting Li (U. of N.Carolina at Charlotte, USA); Taeho Jung (Illinois Inst. of Tech, USA); Hanshang Li (U. of N. Carolina at Charlotte, USA); Lijuan Cao (U. of N. Carolina Charlotte, USA); Weichao Wang (U. of N. Carolina at Charlotte, USA); XiangYang Li (Univ. of Sci&Tech., P.R. China); Yu Wang (Univ. of N. Carolina at Charlotte, USA)

Coffee/Tea Break

Foyer

2:30 pm – 3:00 pm

Session 3 – Mobile Cloud

Keauhou I

3:00 pm – 3:50 pm Chair: **Delphine Reinhardt** (University of Bonn and Fraunhofer FKIE, DE)

3A1. **An Enhanced DSM Model for Computation Offloading**, Jaemin Lee (Sungkyunkwan University, Korea); Yuhun Jun (Samsung Electronics Co., Ltd., Korea); Euseong Seo (Sungkyunkwan University, Korea)

3A2. **Fault-Avoidance Strategies for Context-Aware Schedulers in Pervasive Computing Systems**, Janick Edinger, Dominik Schäfer and Christian Krupitzer (University of Mannheim, Germany); Vaskar Raychoudhury (Indian Institute of Technology Roorkee, India); Christian Becker (Universität Mannheim, Germany)

WiP and Demo Teaser Madness

Keauhou I

3:50 pm – 4:30 pm

Chairs: **Petteri Nurmi** (Helsinki Institute for Information Technology HIIT, Finland),
Gregor Schiele (University of Duisburg-Essen, Germany)

PhD Forum Poster Session (parallel)

Keauhou II

4:30pm – 7:00 pm

Chairs: **Daniela Nicklas** (University of Bamberg, Germany),
George Roussos (University of London, UK)

F1. **Towards Real World Activity Recognition from Wearable Devices**, Timo Sztyley (University of Mannheim, Germany)

F2. **Context-Aware Multi-Inhabitant Functional and Physiological Health Assessment in Smart Home Environment**, Mohammad Alam (University of Maryland Baltimore County & Mobile, Pervasive and Sensor Computing Lab, USA)

F3. **Energy-efficient Acoustic Communication Using Vibration Energy Harvesting**, Guohao Lan (University of New South Wales, Australia)

F4. **Mobile Sensing for Social Interaction Monitoring and Modelling**, Alessandro Montanari (University of Cambridge, United Kingdom)

F5. **Behavioral Monitoring in Smart-Home Environments for Health-Care Applications**, Gabriele Civitaresse (University of Milan, Italy)

F6. **Establishing Trust in Heterogeneous Networks**, Dominik Schürmann (Technische Universität Braunschweig, Germany)

F7. **Practical Visible Light Communication System Utilizing LED Sensing**, Yanbing Yang (Nanyang Technological University, Singapore)

4:30 pm – 7:00 pm

Chairs: **Petteri Nurmi** (HIIT, Finland),
Guoliang Xing (Michigan State University, USA)

- D1. **GENI Wireless Testbed: An Open Edge Ecosystem for Ubiquitous Computing Applications**, Abhimanyu Gosain (Raytheon BBN Technologies, USA); Ivan Seskar (WINLAB, Rutgers University, USA)
- D2. **Toward Optimal Allocation of Multiple Power Resources in Energy-on-Demand Systems**, Naoyuki Morimoto (Kyoto University, Japan)
- D3. **SenseBox: A Low-Cost Smart Home System**, H M Sajjad Hossain (Univ. of Maryland Baltimore County, USA); Joseph Taylor (Washington State Univ., USA); Nirmalya Roy, Aryya Gangopadhyay, Mohammad Alam, and Md Abdullah Al Hafiz Khan (Univ. of Maryland, Baltimore County, USA); Elizabeth Galik (Univ. of Maryland, USA)
- D4. **VIPS: A Video-Based Indoor Positioning System with Centimeter-Grade Accuracy for the IoT**, Lien-Wu Chen, Chi-Ren Chen, and Da-En Chen (Feng Chia University, Taiwan)
- D5. **Field Tests and Indoor Emulation of Real-Spatial Information Based Group Communication**, Akira Nagata (iD Corporation); Katsuichi Nakamura (iD Corporation, Japan); Hitomi Fuji, Daiki Nobayashi, Kazuya Tsukamoto and Takeshi Ikenaga (Kyushu Institute of Technology, Japan)
- D6. **Server-Assisted Interactive Mobile Simulations for Pervasive Applications**, Christoph Dibak, Frank Dürr and Kurt Rothermel (Univ. of Stuttgart, Germany)
- D7. **DMSense: A Non-invasive Diabetes Mellitus Classification System Using Photoplethysmogram Signal**, Vempada Ramu Reddy, Anirban Dutta Choudhury, Parijat Deshpande, Jayaraman Srinivasan, and Naveen Kumar Thokala (TCS, IN); Venkatesh Kaliaperumal (Inst. of Ayurveda and Integrative Medicine Sci., IN)
- D8. **Device Installation in Smart Homes**, Philippe Lalanda (Grenoble University, FR); Catherine Hamon (Orange, France); German Vega (LIG, France); Vincent Lestideau (Grenoble University, France)
- D9. **Demo of PassFrame: Generating Image-based Passwords from Egocentric Videos**, Le Nguyen Ngu Nguyen and Stephan Sigg (Aalto University, Finland)
- D10. **Argus: Smartphone-enabled Human Cooperation for Disaster Situational Awareness via MARL**, Vidyasagar Sadhu, Gabriel Salles-Loustau, Dario Pompili and Saman Zonouz (Rutgers University, USA); Vincent Sritapan (DHS, USA)
- D11. **Visualization of Events Using Twitter and Instagram**, Prasanna Giridhar (UIUC, USA); Tarek Abdelzaher (Univ. of Illinois, Urbana Champaign, USA)
- D12. **TRAINWEAR: a Real-Time Assisted Training Feedback System with Fabric Wearable Sensors**, Bo Zhou (German Research Center for AI, DE); Gernot Bahle and Lorenzo Fuerg (DFKI, Germany); Monit Singh (TU Kaiserslautern, DE); Heber Cruz (German Research Center for AI, DE); Paul Lukowicz (DFKI and Univ. of Kaiserslautern, DE)
- D13. **Pairing Continuous Authentication with Proactive Platform Hardening**, Ryan Johnson (Kryptowire); Rahul Murmura and Angelos Stavrou (Kryptowire, USA); Vincent Sritapan (DHS, USA)
- D14. **Proposal of Hardware Device Model for IoT Endpoint Security and Its Implementation**, Ryota Jinnai (Nara Institute of Science and Technology, Japan); Atsuo Inomata (Tokyo Denki University, Japan); Ismail Arai and Kazutoshi Fujikawa (Nara Institute of Science and Technology, Japan)
- D15. **Developing Distributed Computing Applications with Tasklets**, Janick Edinger, Dominik Schäfer, Martin Breitbach, and Christian Becker (U. of Mannheim, DE)

4:30 pm – 7:00 pm

Chairs: Der Gregor “Gregoroo” Schiele (University of Duisburg-Essen, Germany),
Gang Zhou (William and Mary, USA)

- W1. **Improving Smartphone Based Collision Avoidance by Using Pedestrian Context Information**, Marek Bachmann, Michel Morold and Klaus David (University of Kassel, Germany)
- W2. **Vehicular Fog Computing: Vision and Challenges**, Yu Xiao and Chao Zhu (Aalto University, Finland)
- W3. **Is Someone Moving Around My Cell-phone? Tracing Cellular Signals for Passive Motion Detection**, Stefano Savazzi (National Research Council of Italy (CNR) & Politecnico di Milano, Italy); Sanaz Kianoush (National Research Council of Italy (CNR), Italy); Vittorio Rampa (IEIIT - CNR - Dipartimento di Elettronica e Informazione, IT); Umberto Spagnolini (Politecnico di Milano, IT)
- W4. **Inertial Navigation Algorithms**, Ken Mulder, Maiga Chang and Larbi Esmahi (Athabasca Univ., CA); Mohamed Jemni (University of Tunis, Tunisia)
- W5. **What's Cooking and Why? Behaviour Recognition During Unscripted Cooking Tasks for Health Monitoring**, Kristina Yordanova (Univ. of Rostock, DE); Samuel Whitehouse (University of Bristol, UK); Adeline Paiement (Swansea University, UK); Majid Mirmehdi (University of Bristol, UK); Thomas Kirste (University of Rostock, DE); Ian Craddock (University of Bristol, UK)
- W6. **Challenges of Collecting Empirical Sensor Data from People with Dementia in a Field Study**, Albert Hein, Frank Krüger, Sebastian Bader, Peter Eschholz and Thomas Kirste (University of Rostock, Germany)
- W7. **Classroom Attentiveness Classification Tool (ClassACT): The System Introduction**, Timothy P Negron and Corey Graves (North Carolina A&T State University, USA)
- W8. **An Integrated Platform for Collecting Mobile Phone Data and Learning Demographic Features**, Xuhong Zhang (Univ. of Calif., Irvine, USA); Venkata Mallepudi (M2Catalyst, USA); Carter T Butts (Univ. of California, Irvine, USA)
- W9. **Walking Speed Recognition from 5G Prototype System**, Bahareh Gholampooryazdi and Stephan Sigg (Aalto University, Finland)
- W10. **RFexpress! - RF Emotion Recognition in the Wild**, Muneeba Raja (Aalto University Finland, Finland); Stephan Sigg (Aalto University, Finland)
- W11. **Understanding Passenger Reaction to Dynamic Prices in Ride-on-demand Service**, Suiming Guo (The Chinese University of Hong Kong, Hong Kong); Yaxiao Liu (Shenzhen UCar, P.R. China); Ke Xu (Tsinghua University, P.R. China); Dah Ming Chiu (The Chinese University of Hong Kong, Hong Kong)
- W12. **PassFrame: Generating Image-based Passwords from Egocentric Videos**, Le Nguyen Ngu Nguyen and Stephan Sigg (Aalto University, Finland)
- W13. **Understanding Customer Behaviour in Urban Shopping Mall from WiFi Logs**, Yuanyi Chen, Jinyu Zhang, and Minyi Guo (Shanghai Jiao Tong University, P.R. China); Jiannong Cao (Hong Kong Polytechnic Univ, Hong Kong)

4:30 pm – 7:00 pm

Wednesday, March 15

Announcements

Keauhou I

8:30 am – 8:45 am

Keynote Lecture

Keauhou I

8:45 am – 9:45 am Chair: **Claudio Bettini** (University of Milan, Italy)

- K2. **Curious True Facts About People and Location,**
 John C. Krumm (Microsoft Research, USA)

Coffee/Tea Break

Foyer

9:45 am – 10:15 am

Session 4 – Best Paper Nominees

Keauhou I

10:15 am – 11:45 am Chair: **Christine Julien** (University of Texas at Austin, USA)

- 4A1. **A Study of Bluetooth Low Energy Performance for Human Proximity Detection in the Workplace,** Alessandro Montanari, Sarfraz Nawaz and Cecilia Mascolo (University of Cambridge, United Kingdom); Kerstin Sailer (The Bartlett School of Architecture, University College London, United Kingdom)
- 4A2. **Attention and Engagement-Awareness in the Wild: A Large-Scale Study with Adaptive Notifications,** Tadashi Okoshi (Keio University, Japan); Kota Tsubouchi (Yahoo Japan Research & Yahoo Japan Corporation, Japan); Masaya Taji and Takanori Ichikawa (Yahoo Japan Corporation, Japan); Hideyuki Tokuda (Keio University, JP)
- 4A3. **Server-Assisted Interactive Mobile Simulations for Pervasive Applications,** Christoph Dibak, Andreas Schmidt, Frank Dürr, Bernard Haasdonk and Kurt Rothermel (University of Stuttgart, Germany)

Lunch

Rays on the Bay Restaurant

11:45 am – 1:00 pm

Session 5 – Positioning and Tracking

Keauhou I

1:00 pm – 2:30 pm Chair: **Frank Dürr** (University of Stuttgart, Germany)

- 5A1. **GuideBeacon: Beacon-Based Indoor Wayfinding for the Blind, Visually Impaired, and Disoriented,** Seyed Ali Cheraghi and Vinod Nambodiri (Wichita State University, USA); Laura Walker (Envision Research Institute, USA)
- 5A2. **LocMe: Human Locomotion and Map Exploitation Based Indoor Localization,** Xinye Lin and XiaoWen Chang (McGill University, Canada); Xue Liu (McGill University, Canada)
- 5A3. **Device-free and Privacy Preserving Indoor Positioning using Infrared Retro-reflection Imaging,** Hiroaki Santo, Takuya Maekawa and Yasuyuki Matsushita (Osaka University, Japan)
- 5A4. **Lift: Using Projected Coded Light for Finger Tracking and Device Augmentation,** Shang Ma (University of California, Irvine); Qiong Liu (Fuji-Xerox Palo Alto Laboratory, USA); Chelhwon Kim (Fuji-Xerox Palo Alto Laboratory); Phillip Sheu (University of California, Irvine, USA)

Coffee/Tea Break

Foyer

2:30 pm – 3:00 pm

Session 6 – Wearables - Enabling and Enabled Innovations

Keauhou I

3:00 pm – 4:30 pm Chair: **George Roussos** (Birkbeck College, University of London, UK)

- 6A1. **A Lightweight and Energy-efficient Internet-of-Birds Tracking System.** Cesare Alippi (Politecnico di Milano, Italy); Roberto Ambrosini (Università di Milano Bicocca, Italy); Violetta Longoni (ECOS Studio Associato, Italy); Dario Cogliati (ResEn, Italy); Manuel Roveri (Politecnico di Milano, Italy)
- 6A2. **VEH-COM: Demodulating Vibration Energy Harvesting for Short Range Communication,** Guohao Lan (University of New South Wales, Australia); Weitao Xu (University of Queensland, Australia); Sara Khalifa (University of New South Wales & Data61|CSIRO, Australia); Mahbub Hassan (University of New South Wales, Australia); Wen Hu (the University of New South Wales (UNSW) & CSIRO, Australia)
- 6A3. **Online Personalization of Cross-Subjects based Activity Recognition Models on Wearable Devices,** Timo Sztyler and Heiner Stuckenschmidt (University of Mannheim, Germany)
- 6A4. **BANDANA Body Area Network Device-to-device Authentication using Natural gait,** Dominik Schürmann (Technische Universität Braunschweig, Germany); Arne Bruesch (TU Braunschweig, Germany); Stephan Sigg (Aalto University, Finland); Lars C Wolf (Technische Universität Braunschweig, Germany)

Conference Banquet

Hawaii Lawn

6:00 pm – 9:00 pm

Thursday, March 16

Session 7 – Smart Mobility Solutions

Keauhou I

- 8:30 am – 10:15 am Chair: **Alan Marchiori** (Bucknell University, USA)
- 7A1. **No One Can Track You: Randomized Authentication in Vehicular Adhoc Networks**, Wei Jiang and Dan Lin (MS&T, USA); Feng Li (Missouri University of Science and Technology, USA); Elisa Bertino (Purdue University, USA)
- 7A2. **GreenPlanner: Planning Personalized Fuel-efficient Driving Routes using Multi-sourced Urban Data**, Chao Chen, Yan Ding and Shu Zhang (Chongqing University, P.R. China); Guo Bin and Zhiwen Yu (Northwestern Polytechnical University, P.R. China); Yasha Wang (Pekin University, P.R. China)
- 7A3. **RoVi: Continuous Transport Infrastructure Monitoring Framework For Preventive Maintenance**, Fatjon Seraj, Nirvana Meratnia and Paul Havinga (University of Twente, The Netherlands)
- 7A4. **Toward an Easy Deployable Outdoor Parking System Lessons from Long-term Deployment**, DianXuan Wu (National Taiwan U. of Sci&Tech., Taiwan); Yu Huang (National Taiwan U., Taiwan); YiChao Chen (Huawei Technology, HK); ChuangWen You (National Taiwan U. & Academia Sinica, Taiwan); YiLing Chen (National Taiwan U., Taiwan); KaiLung Hua (National Taiwan U. of Science and Technology, Taiwan)

Coffee/Tea Break

Foyer

10:15 am – 10:45 am

Panel: Pervasive Computing in the New Era of AI

Keauhou I

- 10:45 am – 12:00 pm Chair: **Jiannong Cao** (Hong Kong Polytechnic Univ, Hong Kong)
- Panelists: **Christian Becker** (University of Mannheim, Germany),
Paul Castro (IBM Research, USA),
Sajal K. Das (Missouri University of Science and Technology, USA),
George Roussos (Birkbeck College, UK),
Yu Wang (UNC Charlotte, USA)

Lunch

Rays on the Bay Restaurant

12:00 pm – 1:15 pm

Session 8 – Sensing – Devices and Applications

Keauhou I

- 1:15 pm – 2:45 pm Chair: **Amy L Murphy** (Fondazione Bruno Kessler, Italy)
- 8A1. **TagFree: Passive Object Differentiation via Physical Layer Radiometric Signatures**, Yongpan Zou (Hong Kong University of Science & Technology, Hong Kong); Yuxi Wang (Hong Kong University of Science and Technology, Hong Kong); Shufeng Ye and Kaishun Wu (Shenzhen University, P.R. China); Lionel Ni (Hong Kong University of Science and Technology, Hong Kong)
- 8A2. **CeilingSee: Device-Free Occupancy Inference through Lighting Infrastructure Based LED Sensing**, Yanbing Yang (Nanyang Technological University, Singapore); Jie Hao (Nanjing University of Aeronautics and Astronautics, P.R. China); Jun Luo and Sinno Pan (Nanyang Technological University, Singapore)

- 8A3. **The Comfstat – Automatically sensing thermal comfort for smart thermostats**, Liliانا Barrios (University of Zurich, Switzerland); Wilhelm Kleiminger (ETH Zurich, Switzerland)
- 8A4. **On Attitude Estimation with Smartphones**, Thibaud Michel (University of Grenoble Alpes, France); Pierre Genevès (CNRS, France); Hassen Fourati (University Grenoble Alpes, France); Nabil Layaida (INRIA RhôneAlpes, France)

Coffee/Tea Break

Foyer

2:45 pm – 3:15 pm

Session 9 – Context and its Uses

Keauhou I

1:30 pm – 3:00 pm Chair: **Franca Delmastro** (IITCNR, Italy)

- 9A1. **Privacy Preference Modeling and Prediction in a Simulated Campuswide IoT Environment**, Hosub Lee and Alfred Kobsa (University of California, Irvine, USA)
- 9A2. **Preclude: Conflict Detection in Textual Health Advice**, Sarah Masud Preum, Md Abu Sayeed Mondol, Meiyi Ma, Hongning Wang and John Stankovic (University of Virginia, USA)
- 9A3. **Realistic Context Generation For Mobile App Testing and Performance Evaluation**, Manoj R. Rege and Vlado Handziski (Technische Universität Berlin, Germany); Adam Wolisz (TUB, Germany)
- 9A4. **Encrypting Data to Pervasive Contexts**, Hanno Wirtz (RWTH Aachen University & European Patent Office, Germany); Torsten Zimmermann (RWTH Aachen University, Germany); Matteo Ceriotti (University of DuisburgEssen, Germany); Klaus Wehrle (RWTH Aachen University, Germany)

PerCom 2017 Town Hall Meeting

Keauhou I

4:45 pm – 5:30 pm Chair: **Mohan J Kumar** (Rochester Institute of Technology, USA)

Friday, March 17, Post-conference Workshops

Morning coffee break: 10:00 am – 10:30 am

Foyer

Afternoon coffee break: 2:45 pm – 3:15 pm

Foyer

Lunch: 12:00 pm – 1:15 pm

Rays on the Bay Restaurant

The 8th International Workshop on Information Quality and Quality of Service for Pervasive Computing (IQ2S)

Location: Keauhou Boardroom

IQ2S-keynote: Keynote talk

9:00 am – 10:00 am

IQK. Towards a Trustworthy Pervasive Sensing Substrate with Provenance-based Sensor Data Analytics

Speaker: **Mani B. Srivastava**

IQ2S-S1: Technical Session

10:30 am – 12:00 pm

- IQ1. Estimation Based Adaptable Flow Aggregation Method for Reducing Control Traffic on Software Defined Wireless Networks**, Kazuki Mizuyama (Kyushu Institute of Technology, Japan); Yuzo Taenaka (The University of Tokyo, Japan); Kazuya Tsukamoto (Kyushu Institute of Technology, Japan)
- IQ2. Quality of Information (QoI)-Aware Cooperative Sensing in Vehicular Sensor Networks**, Duc Van Le and Chen-Khong Tham (National University of Singapore, Singapore); Yanmin Zhu (Shanghai Jiao Tong University, P.R. China)
- IQ3. W2Q: A Dual Weighted QoI Scoring Mechanism in Social Sensing using Community Confidence**, Shameek Bhattacharjee, Nirnay Ghosh, Vijay K. Shah and Sajal K. Das (Missouri University of Science and Technology, USA)

IQ2S-S2: Invited talk

1:30 pm – 3:00 pm

IQ2S-S3: Panel

1:00 pm – 2:30 pm

First International Workshop on Annotation of useR Data for Ubiquitous Systems (ARDUOUS)

Location: Keauhou IV

ARDUOUS-keynote: Keynote Session

- 9:00 am – 10:00 am Chair: **Adeline Paiement** (Swansea University, UK)
- ARK. **Good pervasive computing studies require laborious data labeling efforts: Our experience in activity recognition and indoor positioning studies**
Speaker: **Takuya Maekawa** (Osaka University, Japan)

ARDUOUS-S1: Short Presentation of Accepted Papers

- 10:30 am – 12:00 pm Chair: **Kristina Yordanova** (University of Rostock, Germany)
- AR1. **A Smart Data Annotation Tool for Multi-Sensor Activity Recognition**, Alexander Diete, Timo Sztyler and Heiner Stuckenschmidt (U. Mannheim, DE)
- AR2. **Personal context modelling and annotation**, Fausto Giunchiglia, Enrico Bignotti and Mattia Zeni (University of Trento, Italy)
- AR3. **Talk, text or tag? The development of a self-annotation app for activity recognition in smart environments**, Przemyslaw Woznowski, Emma Tonkin, Pawel Laskowski and Niall Twomey (U. of Bristol, UK); Kristina Yordanova (University of Rostock, DE); Alison Burrows (University of Bristol, UK)
- AR4. **On the Applicability of Clinical Observation Tools for Human Activity Annotation**, Frank Krüger, Christina Heine, Sebastian Bader, and Albert Hein (U. of Rostock, DE); Stefan Teipel (DZNE, DE); Thomas Kirste (U. of Rostock, DE)
- AR5. **Evaluating the use of voice-enabled technologies for ground-truthing activity data**, Przemyslaw Woznowski, Alison Burrows, Pawel Laskowski, Emma Tonkin and Ian Craddock (University of Bristol, United Kingdom)
- AR6. **Labeling Subtle Conversational Interactions**, Michael Edwards, Jingjing Deng, Xianghua Xie and Adeline Paiement (Swansea University, United Kingdom)
- AR7. **NFC based dataset annotation within a behavioral alerting platform**, Joseph Rafferty and Jonathan Synnott (Ulster University, United Kingdom); Chris Nugent (University of Ulster, United Kingdom); Gareth Morrison (The Lava Group, United Kingdom); Elena Tamburini (I+ S. R. L, Italy)
- AR8. **Engagement Issues in Self-Tracking Lessons Learned from User Feedback of Three Major Self-Tracking Services**, Carl M Olsson (Malmö University, SE)

ARDUOUS-S2: Poster Session

- 1:15 pm – 2:00 pm Chair: **Adeline Paiement** (Swansea University, UK)

ARDUOUS-S3: Live Annotation Session

- 2:00 pm – 2:45 pm Chair: **Albert Hein** (University of Rostock, Germany)

ARDUOUS-S4: Panel

- 3:15 pm – 4:45 pm Chairs: **Adeline Paiement** (Swansea University, UK)
Kristina Yordanova (University of Rostock, Germany)
- ARP. **How to improve annotation tools and techniques to increase their efficiency and accuracy?**

ARDUOUS-S5: Wrap-up

- 4:45 pm – 5:00 pm Chair: **Kristina Yordanova** (University of Rostock, Germany)

First IEEE International Workshop on Behavioral Implications of Contextual Analytics (BICA)

Location: Hualalai

BICA-S1: Contexts and Behaviors

- 9:00 am – 12:00 pm Chair: **Supriyo Chakraborty** (IBM T. J. Watson Research Lab, USA)
- B11. **Size Efficient Big Data Sharing Among Internet of Things Devices**
Sungmin Cho (The University of Texas at Austin, USA); Christine Julien (University of Texas at Austin, USA)
- B12. **SoccerMate: A Personal Soccer Attribute Profiler using Wearables**
H M Sajjad Hossain (University of Maryland Baltimore County, USA); Md Abdullah Al Hafiz Khan (University of Maryland, Baltimore County, USA); Nirmalya Roy (University of Maryland Baltimore County, USA)
- B13. **Your Data in Your Hands: Privacy-preserving User Behavior Models for Context Computation**, Rahul Murmuria and Angelos Stavrou (Kryptowire, USA); Daniel Barbara (George Mason University, USA); Vincent Sritapan (DHS, USA)
- B14. **A Novel Secured Traffic Monitoring System for VANET**
Shereen Taie (Fayoum University, Egypt); Sanaa Taha (Cairo University, Egypt)
- B15. **CSO-Based Algorithm with Support Vector Machine**, Shereen Taie (Fayoum University, Egypt); Wafaa Ghonaim (Faculty of Science, Al-Azhar University, Egypt)
- B16. **SenseGen: A Deep Learning Architecture for Synthetic Sensor Data Generation**, Moustafa Alzantot (University of California Los Angeles, USA); Supriyo Chakraborty (IBM T. J. Watson Research Lab, USA); Mani B. Srivastava (University of California, Los Angeles, USA)

Workshop on Data Analytics for Mobile Networking (DAMN)

Location: Mauna Loa

DAMN-keynote: Keynote Speech

9:15 am – 10:00 am Chair: **Marco Fiore** (National Research Council of Italy, Italy)
DAK. **Tracking and Optimizing Quality of Experience in the Encrypted Internet**
 Prof. M. Zubair Shafiq (University of Iowa, USA)

DAMN-S1: Operator-collected data analysis

10:30 am – 12:00 pm Chair: **Razvan Stanica** (INSA Lyon, France)
DA1. **Identification of Tidal-Traffic Patterns in Metro-Area Mobile Networks via Matrix Factorization Based Model**, Sebastian Troia (Politecnico di Milano, Italy); Sheng Gao (University of Posts and Telecommunications, P.R. China); Rodolfo Alvizu, Guido Maier and Achille Pattavina (Politecnico di Milano, Italy)
DA2. **Towards an Adaptive Completion of Sparse Call Detail Records for Mobility Analysis**, Guangshuo Chen and Aline Carneiro Viana (INRIA, France); Carlos Sarraute (Grandata Labs, Argentina)
DA3. **Visualizing and Analyzing Georeferenced Workloads Of Mobile Networks**, Wender Xavier, Faber Xavier and Humberto T. Marques-Neto (Pontifical Catholic University of Minas Gerais, Brazil)

DAMN-S2: Device-collected data analysis

1:15 pm – 2:45 pm Chair: **Marco Fiore** (National Research Council of Italy, Italy)
DA4. **Crowdsensing Mobile Content and Context Data: Lessons Learned in the Wild**, Katia Jaffrès-Runser and Gantian Jakllari (University of Toulouse, France); Tao Peng and Vlad Nitu (Université de Toulouse, France)
DA5. **Sensitivity to Web Hosting in a Mobile Field Survey**, Laurent Schumacher (UNamur, Belgium); Marie-Ange Rémiche (FUNDP - The University of Namur, Belgium)
DA6. **Localisation based on Wi-Fi fingerprints: a crowdsensing approach with a device-to-device aim**, Patrice Raveneau (Univ La Rochelle, L3i, France); Stéphane D'Alu (INSA Lyon, France); Herve Rivano (Inria & Université de Lyon, INRIA, INSA Lyon, CITI, France)

The 1st Workshop on emotion awareness for pervasive computing with mobile and wearable devices (EmotionAware)

Location: Mauna Kea

EmotionAware-keynote: Keynote Speech 1

- 9:00 am – 10:00 am Chair: **Klaus David** (University of Kassel, Germany)
- EMK. **User Responses to Social Robots - Experimental Insights and Psychophysiological Measures**
Speaker: **Ruth Stock** (Technische Universität Darmstadt, Germany)

EmotionAware-S1: Session 1

- 10:30 am – 12:00 pm Chair: **Klaus David** (University of Kassel, Germany)
- EM1. **A Mobile Lifelogging Platform to Measure Anxiety and Anger During Real-Life Driving**, Chelsea Dobbins and Stephen Fairclough (Liverpool John Moores University, United Kingdom)
- EM2. **Towards Using Situational Information to Detect an Individual's Perceived Stress Level**, Svenja Neitzel, Frank Englert, Rahul Dwarakanath, Katharina Schneider, Kathrin Reinke, Gisela Gerlach, Christoph Rensing, Doreen Böhnstedt, and Ruth Stock (Technische Universität Darmstadt, Germany)
- EM3. **A Service Robot Acceptance Model: User Acceptance of Humanoid Robots During Service Encounters**, Ruth Stock and Moritz Merkle (Technische Universität Darmstadt, Germany)

EmotionAware-S2: Keynote Speech 2

1:15 pm – 2:15 pm

EmotionAware-S2: Session 2

- 2:15 pm – 2:45 pm Chair: **Tadashi Okoshi** (Keio University, Japan)
- EM4. **From the Lab to the Real-world: an Investigation on the Influence of Human Movement on Emotion Recognition using Physiological signals**, Yaqian Xu, Isabel F Hübener, Ann-Kathrin Seipp, Sandra Ohly and Klaus David (University of Kassel, Germany)

EmotionAware-S3: Session 3

- 3:15 pm – 4:15 pm Chair: **Chelsea Dobbins** (Liverpool John Moores University, United Kingdom)
- EM5. **EmoBGM: estimating sound's emotion for creating slideshows with suitable BGM**, N'djabli Cedric Ange Konan and Hirohiko Suwa (Nara Institute of Science and Technology, Japan); Yutaka Arakawa (Nara Institute of Science and Technology & NAIST, Japan); Keiichi Yasumoto (Nara Institute of Science and Technology, Japan)
- EM6. **Interruptibility Map: Geographical Analysis of Users' Interruptibility in Smart Cities**, Mikio Obuchi, Tadashi Okoshi, Takuro Yonezawa, Jin Nakazawa and Hideyuki Tokuda (Keio University, Japan)

EmotionAware-S4: Discussion and Closing

4:15 am – 5:00 pm

The First International Workshop on Smart Edge Computing and Networking (SmartEdge)

Location: Keauhou III

SmartEdge-keynote: Opening Remarks and Keynote

8:30 am – 10:00 am

- SMK. **Cyber-Physical Systems for Mobile Health, Environmental Monitoring, and Datacenter Management: An Edge Computing Approach**
Speaker: **Guoliang Xing** (Michigan State University)

SmartEdge-S1: Edge Communication/Infrastructure

10:30 am – 12:00 pm

- SM1. **Loquat: A Framework for Large-Scale Actor Communication on Edge Networks**, Peter Van Roy and Christopher Meiklejohn (Université Catholique de Louvain, Belgium)
- SM2. **OpenChirp: A Low-Power Wide-Area Networking Architecture**, Adwait Dongare and Anthony Rowe (Carnegie Mellon University, USA)
- SM3. **MetroSDX: A Resilient Edge Network for the Smart Community**, Sean Donovan, Joaquin Chung and Matt Sanders (Georgia Institute of Technology, USA); Russell J Clark (Georgia Tech, USA)

SmartEdge-S2: Edge Resource Management

1:15 pm – 2:45 pm

- SM4. **Accuracy-Resource Tradeoff for Edge Devices in Internet of Things**, Nima Mousavi (University of California, San Diego, USA); Baris Aksanli (San Diego State University, USA); Alper Sinan Akyurek (University of California - San Diego, USA); Tajana Simunic Rosing (University of California, San Diego, USA)
- SM5. **Latency Aware Mobile task Assignment and Load Balancing for Edge Cloudlets**, Vinay Chamola and Chen-Khong Tham (National University of Singapore, Singapore); Sai Sessa G (Birla Inst. of Technology and Science, India)
- SM6. **Towards edge-caching for image recognition**, Utsav Drolia (Carnegie Mellon University, USA); Katherine Guo (Bell Labs, USA); Jiaqi Tan, Rajeev Gandhi and Priya Narasimhan (Carnegie Mellon University, USA)

SmartEdge-S3: Edge Resource Management

3:15 pm – 4:15 pm

- SM7. **A City Edge Cloud with its Economic and Technical Considerations**, Glenn Ricart (US Ignite, USA)
- SM8. **Design and Implementation of IoT-Based HVAC System for Future Zero Energy Building**, Myeong-in Choi, Keonhee Cho and Jun Yeon Hwang (Chung-Ang University, Korea); Lee Won Park (ChungAng University, Korea); Sehyun Park, Kyu Hee Jang and Sunghwan Park (Chung-Ang University, Korea)

SmartEdge-S4: Closing Remarks

4:15 pm – 4:30 pm

PerCom 2017 - Venue Maps

