

2023 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops 2023)

**Atlanta, Georgia, USA
13-17 March 2023**



**IEEE Catalog Number: CFP23344-POD
ISBN: 978-1-6654-5382-0**

**Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP23344-POD
ISBN (Print-On-Demand):	978-1-6654-5382-0
ISBN (Online):	978-1-6654-5381-3
ISSN:	2836-5348

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Artifact: Serverledge: Decentralized Function-As-A-Service for the Edge-Cloud Continuum.....	1
<i>Gabriele Russo Russo, Tiziana Mannucci, Valeria Cardellini, Francesco Lo Presti</i>	
Artifact: CASPER: Context-Aware Anomaly Detection System for Industrial Robotic Arms.....	3
<i>Hakan Kayan, Omer Rana, Pete Burnap, Charith Perera</i>	
Artifact: Codesign of Edge Intelligence and Automated Guided Vehicle Control	5
<i>Malith Gallage, Rafaela Scaciota, Sumudu Samarakoon, Mehdi Bennis</i>	
Artifact: Revising Poor Man's Eye Tracker for Crowd-Sourced Studies.....	7
<i>Eileen Becks, Malte Josten, Viktor Matkovic, Torben Weis</i>	
A Joint Traffic Flow Estimation and Prediction Approach for Urban Networks.....	9
<i>Ruiyuan Jiang, Shangbo Wang, Yuli Zhang, Valerio Selis</i>	
A Novel Multi-Agent Deep RL Approach for Traffic Signal Control	15
<i>Wang Shijie, Wang Shangbo</i>	
Traffic Congestion Mitigation by Deceleration Control with Short-Term Velocity Forecasting Using V2X.....	21
<i>Tetsuya Fukumaru, Hiroaki Morino</i>	
Keynote Talk: Leveraging the Edge-Cloud Continuum to Manage the Impact of Wildfires on Air Quality.....	27
<i>Daniel Balouek-Thomert, Ismael Perez, Sam D. Faulstich, Heather A Holmes, Ilkay Altintas, Manish Parashar</i>	
E-Health Monitoring Using Camera: Measurement of Vital Parameters in a Noisy Environment	32
<i>B. Jalil, V. Lionetti, L. Valcarenghi</i>	
Detecting an Ataxia-Type Disease from Acceleration Data.....	38
<i>Eileen Kränzle, Stephan Sigg</i>	
Orchestration of Containerized Applications in the Cloud Continuum	44
<i>Giuseppe Di Modica, Antonino Galletta, Lorenzo Carnevale, Ahmad Alkhansa, Alessandro Costantini, Daniele Cesini, Paolo Bellavista, Massimo Villari</i>	
Holistic Life-Cycle Management of Cloud-To-Thing Compute Entities	50
<i>Simon Volpert, Georg Eisenhart, Jörg Domaschka</i>	
Selective Data Offloading in Edge Computing for Two-Tier Classification with Local Domain Partitions.....	56
<i>Forough Shirin Abkenar, Leonardo Badia, Marco Levorato</i>	
Smart Computation Offloading for Mobile Clouds.....	62
<i>Sergiu-Cristian Toader, Radu-Ioan Ciobanu, Ciprian Dobre</i>	
A QoS-Aware 3D Point Cloud Streaming from Real Space for Interaction in Metaverse.....	68
<i>Hiroki Ishimaru, Yugo Nakamura, Manato Fujimoto, Hirohiko Suwa, Keiichi Yasumoto</i>	
On the Use of Deep Neural Networks for Security Vulnerabilities Detection in Smart Contracts.....	74
<i>Martina Rossini, Mirco Zichichi, Stefano Ferretti</i>	

MichelsonLiSA: A Static Analyzer for Tezos.....	80
<i>Luca Olivieri, Thomas Jensen, Luca Negrini, Fausto Spoto</i>	
ChoEn: A Smart Contract Based Choreography Enforcer.....	86
<i>Francesco Spegini, Lorenzo Fratini, Massimiliano Pirani, Luca Spalazzi</i>	
An Empirical Study of Impact of Solidity Compiler Updates on Vulnerabilities.....	92
<i>Chihiro Kado, Naoto Yanai, Jason Paul Cruz, Shingo Okamura</i>	
Anonymization Use Cases for Data Transfer in the Automotive Domain.....	98
<i>Andrea Fieschi, Pascal Hirmer, Rose Sturm, Martin Eisele, Bernhard Mitschang</i>	
Efficient Vehicle-Centric Networking for Ultra Dense Vehicle Communication in 5G Access.....	104
<i>Pawan Subedi, Beichen Yang, Xiaoyan Hong</i>	
Intermittent Multi-Hop Video and UAV Control Command Transmission for Sewer Inspection.....	110
<i>Yuki Tsutsumi, Thanh V. Pham, Susumu Ishihara</i>	
CHARLIE: A Chatbot that Recommends Daily Fitness and Diet Plans.....	116
<i>Deepanjali Chowdhury, Ahana Roy, Sreenivasan Ramasamy Ramamurthy, Nirmalya Roy</i>	
A Perspective of Telemedicine Videostreaming Systems for Emergency Care.....	122
<i>Sujit Kumar Sahu, Anna Lina Ruscelli, Gabriele Cecchetti, Molka Gharbaoui, Piero Castoldi</i>	
BiRD 2023 Keynote Talk: Collective Learning in Non-Human Animals.....	128
<i>Takao Sasaki</i>	
Keynote: The Elastic AI Ecosystem — Towards a Holistic Pervasive System for Adaptive Artificial Intelligence.....	129
<i>Gregor Schiele</i>	
Electrodermal Activity in the Evaluation of Engagement for Telemedicine Applications.....	130
<i>Giulia Masi, Gianluca Amprimo, Irene Rechichi, Claudia Ferraris, Lorenzo Priano</i>	
Evaluation of a Depth Camera as e-Health Sensor for Contactless Respiration Monitoring.....	136
<i>Steffen Brinkmann, Jochen Kempfle, Kristof Van Laerhoven, Jonas Pöhler</i>	
IoT in the Air: Thread-Enabled Flying IoT Network for Indoor Environments.....	142
<i>Dheryta Jaisinghani, Tanzeel Ur Rehman, Ryan Mulkey, Andrew Berns</i>	
PADAAV: Enhancing Perception Systems Using GAN-Generated Adversarial Augmented Domains for Autonomous Vehicles.....	148
<i>Oshin Rawlley, Shashank Gupta</i>	
Fast and Lightweight UAV-Based Road Image Enhancement Under Multiple Low-Visibility Conditions.....	154
<i>Chaitanya Kapoor, Aadith Warriar, Mohit Singh, Pratik Narang, Harish Puppala, Srinivas Rallapalli, Ajit Pratap Singh</i>	
Autonomous Network Slicing and Resource Management for Diverse QoS in IoT Networks.....	160
<i>Sri Harsh Amur, Kamran Zia, Alessandro Chiumento, Paul Havinga</i>	
Integrating UAV and LoRaWAN in WSN for Intelligent Monitoring in Large-Scale Rural Farms.....	166
<i>Xu Tao, Simone Silvestri</i>	
Contactless Animal Activity and Behavior Monitoring.....	168
<i>Zaid Farooq Pitafi</i>	

Hypermedia Multi-Agents, Semantic Web, and Microservices to Enhance Smart Agriculture Digital Twin*	170
<i>Yogeswaranathan Kalyani, Rem Collier</i>	
Emotional Virtual Reality Stroop Task	172
<i>Deniz Mevlevioglu, Sabin Tabirca, David Murphy</i>	
Episodes of Change: Emotion Change in Semantic Trajectories of Multimodal Sensor Data	178
<i>Thomas Johnson, Eiman Kanjo</i>	
Event-Triggered Feedback System Using YOLO for Optogenetic Manipulation of Neural Activity	184
<i>Hayato M Yamanouchi, Ryoya Tanaka, Azusa Kamikouchi</i>	
Detecting Repetitive Human Actions by Neural Networks Trained on Composite Data Only	188
<i>Yuuki Nishino, Takuya Maekawa, Takahiro Hara</i>	
Estimating Networks of Interaction in Fish Schools with a Minimal Model	194
<i>Hiroaki Kawashima</i>	
Analysis of Accelerometer Data for Personalised Mood Detection in Activities of Daily Living	200
<i>Yulith V. Altamirano-Flores, Alexandros Konios, Irvin Hussein Lopez-Nava, Matias Garcia-Constantino, Idongesit Ekerete, Mustafa A. Mustafa</i>	
Emotions Studied by Computer Scientists and Psychologists — a Complementary Perspective	206
<i>Maciej Behnke, Stanislaw Saganowski, Lukasz D. Kaczmarek, Przemyslaw Kazienko</i>	
Measuring the Edge: A Performance Evaluation of Edge Offloading	212
<i>Heiko Bornholdt, Kevin Röbert, Martin Breitbach, Mathias Fischer, Janick Edinger</i>	
OS ³ : The Art and the Practice of Searching for Open-Source Serverless Functions	219
<i>Sarvesh Bhatnagar, Zhengquan Li, Zheng Song, Eli Tilevich</i>	
Reducing the Cost of GPU Cold Starts in Serverless Deep Learning Inference Serving	225
<i>Justin San Juan, Bernard Wong</i>	
Low-Power and Cost-Effective Context Information Estimation for Wearables	231
<i>Mohammad Hasan Rahmani, Maarten Weyn, Rafael Berkvens</i>	
Learning Using Privileged Information for Wearable-Based Human Activity Recognition	233
<i>Nobuyuki Oishi, Daniel Roggen, Philip Birch, Paula Lago</i>	
On-Device AI: Quantization-Aware Training of Transformers in Time-Series	235
<i>Tianheng Ling, Gregor Schiele</i>	
A Decentralized Approach to Award Game Achievements	237
<i>Francesco Bruschi, Donatella Sciuto, Tommaso Paulon, Andrea Marchesi</i>	
Soulbound Token for Covid-19 Vaccination Certification	243
<i>Maria Ilaria Lunesu, Roberto Tonelli, Andrea Pinna, Simone Sansoni</i>	
Optimizing Data Distribution to Balance Scalability-Redundancy Trade-Off for Collaborative Blockchain Storage	249
<i>Azam Khan, Ashiq Anjum</i>	
Keynote: Hooked on a Feeling - Challenges and Opportunities of Emotion Research in Human-Computer Interaction	256
<i>Benjamin Tag</i>	

OpenPack Challenge 2022 Report: Impact of Data Cleaning and Time Alignment on Activity Recognition	257
<i>Yusuke Matsubayashi</i>	
Precise Human Activity Recognition for the OpenPack Challenge 2022.....	259
<i>Shubham Maroti Wagh</i>	
Exploring Cross Modality Feature Fusion for Activity Recognition at OpenPack Challenge 2022.....	262
<i>Tetsuo Inoshita, Yuto Namba, Yuichi Nakatani, Kenta Ishihara, Sachio Iwasaki, Kosuke Moriwaki, Xian-Hua Han</i>	
Transformer-Based Time Series Classification for the OpenPack Challenge 2022.....	264
<i>Tomoki Uchiyama</i>	
A Spatial-Temporal Graph Convolutional Networks-Based Approach for the OpenPack Challenge 2022.....	267
<i>Shurong Chai, Jiaqing Liu, Rahul Kumar Jain, Yinhao Li, Tomoko Tateyama, Yen-Wei Chen</i>	
Towards IoT-Assisted Non-Intrusive Monitoring of Thermal Variation on Building Envelope.....	270
<i>Naima Khan, Nirmalya Roy</i>	
P2P Energy Trading in a Smart Residential Environment with User Behavioral Modeling.....	272
<i>Ashutosh Timilsina, Simone Silvestri</i>	
Enabling Energy Efficient Augmented Reality in Multi-UAV-UGV Systems.....	274
<i>Chenyang Wang, Qi Han</i>	
A Tool for Automated Generation of Domain Specific Symbolic Models from Texts	276
<i>Teodor Stoev, Tomasz Sosnowski, Kristina Yordanova</i>	
Canella: Privacy-Aware End-To-End Integrated IoT Development Ecosystem	279
<i>Atheer Aljerais, Omer Rana, Charith Perera</i>	
CASPER: Context-Aware Anomaly Detection System for Industrial Robotic Arms	282
<i>Hakan Kayan, Omer Rana, Pete Burnap, Charith Perera</i>	
Codesign of Edge Intelligence and Automated Guided Vehicle Control.....	285
<i>Malith Gallage, Rafaela Scaciota, Sumudu Samarakoon, Mehdi Bennis</i>	
Real-Time Multi-Camera Analytics for Traffic Information Extraction and Visualization	288
<i>Mahshid Ghasemi, Sofia Kleisarchaki, Thomas Calmant, Jiawei Lu, Shivam Ojha, Zoran Kostic, Levent Gürgen, Gil Zussman, Javad Ghaderi</i>	
Demo: Velox: Enhancing P2P Real-Time Communication in Browsers	291
<i>Justin Parsons, Jackson Winslow, Lewis Tseng</i>	
Drone Formation for Efficient Swarm Energy Consumption	294
<i>Shilong Guo, Balsam Alkouz, Babar Shahzaad, Abdallah Lakhdari, Athman Bouguettaya</i>	
ElasticAI: Creating and Deploying Energy-Efficient Deep Learning Accelerator for Pervasive Computing.....	297
<i>Chao Qian, Tianheng Ling, Gregor Schiele</i>	
IoT Sensing for Precision Agriculture	300
<i>David Sousa, Ruben Moutinho, Carlos Resende, João Oliveira, Miguel Roque Soares, Ricardo Graça, Antonio Oliveira, Waldir Moreira, Lopo Carvalho</i>	

Kaolid: Lid-Type Olfactory Interface to Improve Taste of Beverages with Ortho-Retronasal Smell	303
<i>Daiki Mayumi, Yugo Nakamura, Yuki Matsuda, Kentaro Ueda, Shinya Misaki, Keiichi Yasumoto</i>	
Monitoring Efficiency of IoT Wireless Charging	306
<i>Pengwei Yang, Amani Abusafia, Abdallah Lakhdari, Athman Bouguettaya</i>	
Monitoring, IoT Devices, and Semantics	309
<i>Marc Vila, Maria-Ribera Sancho, Ernest Teniente</i>	
On the Advantages of Hand Gesture Recognition with Data Gloves for Gaming Applications.....	313
<i>Achim Schade, Jonas Schulz, Vu Nguyen, Christian Scheunert, Sebastian Bodenstedt, Giang T. Nguyen, Stefanie Speidel, Frank H. P. Fitzek</i>	
Photovoltaic Cells for Energy Harvesting and Step Counting.....	316
<i>Kaede Shintani, Hamada Rizk, Hirozumi Yamaguchi</i>	
POSSUM: PrOactive diSruption riSk Identification for sUpply Chain Management	319
<i>Hamed Aboutorab, Morteza Saberi, Omar K. Hussain, Farookh Khadeer Hussain</i>	
Privacy-Preserving Object Detection with Veracruz	322
<i>Mathias Brossard, Guilhem Bryant, Xinxin Fan, Alexandre Ferreira, Edmund Grimley-Evans, Christopher Haster, Derek Miller, Dominic P. Mulligan, Hugo J. M. Vincent, Shale Xiong, Lei Xu</i>	
QoS-Aware Point Cloud Streaming of Wild Animals/Humans for Interactions in Virtual Space.....	325
<i>Hiroki Ishimaru, Yugo Nakamura, Manato Fujimoto, Hirohiko Suwa, Keiichi Yasumoto</i>	
Revising Poor Man's Eye Tracker for Crowd-Sourced Studies	328
<i>Eileen Becks, Malte Josten, Viktor Matkovic, Torben Weis</i>	
Secure Computations in Opportunistic Networks: An Edgelet Demonstration with a Medical Use-Case	331
<i>Ludovic Javet, Nicolas Anciaux, Luc Bouganim, Léo Lamoureux, Philippe Pucheral</i>	
Service-Based Trajectory Planning in Multi-Drone Skyway Networks	334
<i>Sarah Bradley, Albertus Alvin Janitra, Babar Shahzaad, Balsam Alkouz, Athman Bouguettaya, Abdallah Lakhdari</i>	
Towards Deploying Advanced Context Provisioning for Surf Life Saving Use Case.....	337
<i>Kanaka Sai Jagarlamudi, Arkady Zaslavsky, Kevin Lee</i>	
UnStressMe: Explainable Stress Analytics and Self-Tracking Data Visualizations	340
<i>Eva Paraschou, Sofia Yfantidou, Athena Vakali</i>	
Voice-Enabled Privacy Assistant Towards Facilitating Successful Ageing in Smart Homes	343
<i>Reem Aldhafiri, Georgina Powell, Elizabeth Smith, Charith Perera</i>	
Towards Activity Recognition Using Wi-Fi CSI from Backscatter Tags.....	346
<i>Viktor Erdélyi, Kazuki Miyao, Akira Uchiyama, Tomoki Murakami</i>	
Heterogeneous Hyper-Graph Neural Networks for Context-Aware Human Activity Recognition	350
<i>Wen Ge, Guanyi Mou, Emmanuel O. Agu, Kyumin Lee</i>	
Enabling Relative Localization for Nanodrone Swarm Platooning.....	355
<i>Wei Sun</i>	

Indoor Positioning Using Wi-Fi and Machine Learning for Industry 5.0.....	359
<i>Inoj Neupane, Belal Alsinglawi, Khaled Rabie</i>	
Towards Location- And Orientation-Independent RFID Authentication with COTS Devices.....	363
<i>Yinan Zhu, Chunhui Duan, Xuan Ding</i>	
Hands-Free Mobile Device Control Through Head Pose Estimation.....	367
<i>Janick Edinger, Melanie Heck, Laurien Lummer, Anton Wachner, Christian Becker</i>	
NNTrak: A Neural Network Approach Towards Calculating Air-Writing Trajectories in Real-Time with a Smartwatch.....	374
<i>Vivek Chandel, Avik Ghose</i>	
Mobile Spaghetti Analysis in Grocery Store with Smartphone Sensing	380
<i>Kota Tsubouchi, Takuzo Ikuta, Nobuhiko Nishio</i>	
FACT: A Flexible Access Control Technique for Very Large Scale Public IoT Services	386
<i>Alian Yu, Jian Kang, Wei Jiang, Dan Lin</i>	
Generating Tiny Deep Neural Networks for ECG Classification on Micro-Controllers.....	392
<i>Shalini Mukhopadhyay, Swarnava Dey, Avik Ghose, Pragya Singh, Pallab Dasgupta</i>	
Permission Method for Use of Smartphone Location Data with Emphasis on Users' Understanding	398
<i>Kota Tsubouchi, Takashi Miyazaki</i>	
Balancing Federated Learning Trade-Offs for Heterogeneous Environments.....	404
<i>Matt Baughman, Nathaniel Hudson, Ian Foster, Kyle Chard</i>	
3D Spatial Sensing and Analysis Model of Closed Space CO2 Concentration.....	408
<i>Daisuke Goto, Akira Tsuge, Wenhao Huang, Takafumi Kawasaki, Yin Chen, Tadashi Okoshi, Jin Nakazawa</i>	
Water Quality Analysis Using mmWave Radars	412
<i>Dariush Salami, Anni Juvakoski, Riku Vahala, Michael Beigl, Stephan Sigg</i>	
Grid MIMO: Exploiting Spatiality of Power Line Infrastructure for MIMO.....	416
<i>Wei Sun, Bo Chen, Vivek Yenamandra, Kannan Srinivasan</i>	
Keynote: Data Scarcity in Sensor-Based Human Activity Recognition	420
<i>Gabriele Civitarese</i>	
On Efficacy of Meta-Learning for Domain Generalization in Speech Emotion Recognition	421
<i>Raeshak King Gandhi, Vasileios Tsouvalas, Nirvana Meratnia</i>	
How Not to IETF: Lessons Learned from Failed Standardization Attempts.....	427
<i>Michael Welzl, Jörg Ott, Colin Perkins, Safiqul Islam, Dirk Kutscher</i>	
NFTs for Trusted Traceability and Management of Digital Twins for Shipping Containers	433
<i>Feruz K. Elmay, Mohammad Madine, Khaled Salah, Raja Jayaraman</i>	
How to Change a Light Bulb in Your Smart Home: A Digital-Twin Based Approach.....	439
<i>Peter Zdankin, Marco Picone, Matthias Schaffeld, Marco Mamei, Torben Weis</i>	
Research and the City: An Experience Report on Launching the Smart City Research Lab Bamberg	445
<i>Daniela Nicklas</i>	

APS: An Auditable Positioning System Based on Angle-Of-Arrival Proof of Location and Graph of Trust.....	446
<i>Jakob Schaerer, Antonio Di Maio, Torsten Braun</i>	
A Tutorial on Dataset Creation for Sensor-Based Human Activity Recognition.....	453
<i>Christopher Reining, Nilah Ravi Nair, Friedrich Niemann, Fernando Moya Rueda, Gernot A. Fink</i>	
Evaluation of Regularization-Based Continual Learning Approaches: Application to HAR	460
<i>Bonpagna Kann, Sandra Castellanos-Paez, Philippe Lalanda</i>	
TSN Experiments Using COTS Hardware and Open-Source Solutions: Lessons Learned.....	466
<i>Filip Rezabek, Marcin Bosk, Georg Carle, Jörg Ott</i>	
A Deployment-First Methodology to Mechanism Design and Refinement in Distributed Systems	472
<i>Martijn De Vos, Georgy Ishmaev, Johan Pouwelse, Stefanie Roos</i>	
An Effective and Efficient Self-Attention Based Model for Next POI Recommendation.....	478
<i>Qingxin Xia, Takahiro Hara, Takuya Maekawa, Mori Kurokawa, Kei Yonekawa</i>	
PresSim: An End-To-End Framework for Dynamic Ground Pressure Profile Generation from Monocular Videos Using Physics-Based 3D Simulation.....	484
<i>Lala Shakti Swarup Ray, Bo Zhou, Sungho Suh, Paul Lukowicz</i>	
MSQA: An Unsupervised Domain-Adapted Question Answering Method Based on Multiple Source Domains	490
<i>Tao Peng, Xincheng Zhang, Junjie Huang, Junping Liu, Xinrong Hu, Ruhan He</i>	
CrowdFlowTransformer: Capturing Spatio-Temporal Dependence for Forecasting Human Mobility	496
<i>Tomoki Choya, Naoki Tamura, Shin Katayama, Kenta Urano, Takuro Yonezawa, Nobuo Kawaguchi</i>	
Towards Cheaper Tourists' Emotion and Satisfaction Estimation with PCA and Subgroup Analysis.....	502
<i>Lucas Maris, Yuki Matsuda, Ramin Sadre, Keiichi Yasumoto</i>	
Bus Ridership Prediction with Time Section, Weather, and Ridership Trend Aware Multiple LSTM	509
<i>Tatsuya Yamamura, Ismail Arai, Masatoshi Kakiuchi, Arata Endo, Kazutoshi Fujikawa</i>	
Supporting Winter Road Maintenance Procedures with the Use of Distributed Measurements Based on IoT, Thermodynamic Models and Machine Learning	515
<i>Miroslaw Hajder, Piotr Hajder, Lucyna Hajder, Mateusz Liput, Janusz Kolbusz</i>	
Is Querying Users Acceptable for Human Activity Recognition Based on Active Learning?.....	521
<i>Riccardo Presotto, Gabriele Civitarese, Claudio Bettini</i>	
When the Ground Truth is Not True: Modelling Human Biases in Temporal Annotations.....	527
<i>Taku Yamagata, Emma L. Tonkin, Benjamin Arana Sanchez, Ian Craddock, Miquel Perello Nieto, Raul Santos-Rodriguez, Weisong Yang, Peter Flach</i>	
Experiencing Annotation: Emotion, Motivation and Bias in Annotation Tasks	534
<i>Teodor Stoev, Kristina Yordanova, Emma L. Tonkin</i>	
Context-Aware Outlier Detection for Sensor Data Stream Processing.....	540
<i>Aboubakr Benabbas, Marco Grawunder, Daniela Nicklas</i>	
RTClean: Context-Aware Tabular Data Cleaning Using Real-Time OFDs.....	546
<i>Daniel Del Gaudio, Tim Schubert, Mohamed Abdelaal</i>	

Assessing the Maturity of Digital Twinning Solutions for Ports	552
<i>Robert Klar, Anna Fredriksson, Vangelis Angelakis</i>	
Mobile Robot Control and Autonomy Through Collaborative Twin	558
<i>Nazish Tahir, Ramviyas Parasuraman</i>	
Keynote: Computational Behavior Analysis - Pushing the Boundaries Towards Usable Digital Health	564
<i>Thomas Plötz</i>	
If Only We Had More Data!: Sensor-Based Human Activity Recognition in Challenging Scenarios.....	565
<i>Thomas Plötz</i>	
Mobile Health System Using Facial Image for Assessment of Work Engagement, Recovery and Reattachment	571
<i>Satoshi Yoshimura, Hirohiko Suwa, Teruhiro Mizumoto</i>	
Validating Quality of Context in Pervasive Computing Systems: Surf Life Saving Use Case.....	577
<i>Kanaka Sai Jagarlamudi, Arkady Zaslavsky, Seng W. Loke, Kevin Lee</i>	
CV-Priv: Towards a Context Model for Privacy Policy Creation for Connected Vehicles	583
<i>Yunxuan Li, Pascal Hirmer, Christoph Stach</i>	
3D Hand Tracking with Induced Magnetic Field	589
<i>Sizhen Bian, Bo Zhou, Paul Lukowicz, Mengxi Liu, Michele Magno, Kexuan Guo</i>	
PuffConv: A System for Online and On-Device Puff Detection for Smoking Cessation	595
<i>Varsha Sharma, Shalini Mukhopadhyay, Sakyajit Bhattacharya, Swarnava Dey, Avik Ghose</i>	
C-HAR: Compressive Measurement-Based Human Activity Recognition	601
<i>Billy Dawton, Shigemi Ishida, Yutaka Arakawa</i>	
Applying Differential Privacy to Medical Questionnaires	608
<i>Arno Appenzeller, Nick Terzer, Patrick Philipp, Jürgen Beyerer</i>	
DCFL: Dynamic Clustered Federated Learning Under Differential Privacy Settings.....	614
<i>Andrea Augello, Giulio Falzone, Giuseppe Lo Re</i>	
Keynote: Speech and Audio Capabilities in Our Everyday Lives – Can it Be Trusted?.....	620
<i>Jennifer Williams</i>	
Towards Scalable Resilient Federated Learning: A Fully Decentralised Approach.....	621
<i>Divi De Lacour, Marc Lacoste, Mario Südholt, Jacques Traoré</i>	
Computation Efficient ECG Classification on Resource Constrained Devices	628
<i>Andrea Arigliano, Andrea Malagoli, Luca Bedogni</i>	
Differential Privacy with Weighted ϵ for Privacy-Preservation in Human Activity Recognition.....	634
<i>Ryusei Fujimoto, Yugo Nakamura, Yutaka Arakawa</i>	
A Secure Bandwidth-Efficient Treatment for Dropout-Resistant Time-Series Data Aggregation.....	640
<i>Reyhaneh Rabaninejad, Alexandros Bakas, Eugene Frimpong, Antonis Michalas</i>	
Channel State Information for Human Activity Recognition with Low Sampling Rates.....	646
<i>Jeroen Klein Brinke, Alessandro Chiumento, Paul Havinga</i>	

On Training Strategies for LSTMs in Sensor-Based Human Activity Recognition	653
<i>Shuai Shao, Yu Guan, Xin Guan, Paolo Missier, Thomas Plötz</i>	
Extraction of Important Temporal Order for eXplainable AI on Time-Series Data.....	659
<i>Yasutaka Nishimura, Naoto Takeda, Roberto Legaspi, Kazushi Ikeda, Thomas Plötz, Sonia Chernova</i>	
Cognitive and Emotional Monitoring with Inexpensive Wrist-Worn Consumer-Grade Wearables	665
<i>Yunan Wu, Roxana Valdez, Clifton Forlines</i>	
Wearables for In-Situ Monitoring of Cognitive States: Challenges and Opportunities	671
<i>Meera Radhakrishnan, Thivya Kandappu, Manoj Gulati, Archan Misra</i>	
PhiNet-GAN: Bringing Real-Time Face Swapping to Embedded Devices.....	677
<i>Alberto Ancilotto, Francesco Paissan, Elisabetta Farella</i>	
Content-Aware Dynamic Resource Allocation Framework for Video Analytic Applications at Edge	683
<i>Boonyarith Saovapakhiran, Sorawit Khumnaewnak, Wibhada Naruephiphat, Chalernpol Charnsripinyo</i>	

Author Index