

The 12th ACM International Conference on Pervasive Technologies Related to Assistive Environments

PETRA 2019

Conference Program

June 05 - 07, 2019
Rhodes, Greece

Organized by

The University of Texas at Arlington, Arlington, Texas, USA

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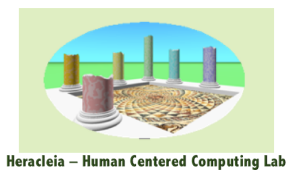
The College of Engineering, University of Texas at Arlington (UTA), USA

The Department of Computer Science and Engineering at UTA, USA

The Human Centered Computing Laboratory (Heracleia) at UTA, USA

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Dear Colleagues,

Welcome to the 12th ACM International Conference on Pervasive Technologies Related to Assistive Environments, June 05-07, 2019 in Rhodes, Greece.

PETRA is an interdisciplinary conference with focus on pervasive technologies that improve the quality of life and enhance human performance. Results presented range from basic research in computer vision, machine learning, data mining and big data, to engineering applications, sensors, devices and software solutions that address physical, cognitive, mental and communication abilities and performance. The conference addresses the needs of both healthy individuals and persons with special needs, such as providing safe in-home care for the elderly, or persons with Dementia, Alzheimer's, Parkinson's, chronic arthritis, PTSD, low vision, and other conditions. PETRA's computer-based methods can help people build, stone by stone (PETRA means stone in Greek), new ways of life to survive in an increasingly challenging world. The conference will award four types of awards: *Best Technical Paper*, *Best Paper for Novelty*, *Best Student Paper*, and *Best Poster Paper*.

Invited Speakers



Dr. Udo Frese obtained his Dr.-Ing. in 2004 from University of Erlangen-Nürnberg in Germany while working at the Institute of Robotics and Mechatronics of the German Aerospace Center (DLR). He was one of the pioneers of sparse-matrix based Simultaneous Localization and Mapping (SLAM) which is the task of fusing local, uncertain geometric information into a consistent map. He is now professor for multi-sensor interactive systems at the University of Bremen in northern Germany. He is working on sensor fusion of inertial measurements with a focus on human centered applications, such as assisting shipyard workers in healthy movement or tracking cyclists in a track cycling race. His group also runs B-Human, the most successful robot soccer team in the standard platform league.



Dr. Oliver Korn is a full professor for Human Computer Interaction (HCI) and director of the Affective & Cognitive Institute (ACI) at Offenburg University in Germany. He also is a certified Project Manager (German Chamber of Commerce), Senior Member of the ACM and Professional Member of the IEEE. His main areas of research are: Assistive Technologies & Robotics, Affective Computing, Augmented, Virtual and Mixed Reality, as well as Gaming & Gamification. In the ACI, he bundles these fields together with an interdisciplinary research team. The overall vision is to enrich environments by intuitive interfaces, "intelligent" context-aware systems and playful applications, which adapt to both the users and the context.



Dr. Tanja Schultz received her diploma and doctoral degree in Informatics from University of Karlsruhe, Germany, in 1995 and 2000. Prior to these degrees she completed the state exam in Mathematics, Sports, Physical and Educational Science from Heidelberg University, Germany in 1989. Dr. Schultz is currently the Professor for Cognitive Systems at the University of Bremen, Germany and adjunct Research Professor at the Language Technologies Institute of Carnegie Mellon, PA USA. Since 2007, she directs the Cognitive Systems Lab, where her research activities include multilingual speech recognition and the processing, recognition, and interpretation of biosignals for human-centered technologies and applications. Dr. Schultz was the recipient of the Otto Haxel Award in 2013, the Alcatel Lucent Award for Technical Communication in 2012, the PLUX Wireless Biosignals Award in 2011, and the Allen Newell Medal for Research Excellence in 2002, and received the ISCA / EURASIP Speech Communication Best paper awards in 2001 and 2015.

08:00-09:00	Conference Registration	
09:00-09:25	<i>Room 1</i>	
	Conference Opening Fillia Makedon, Conference Chair, University of Texas Arlington, USA Oliver Korn, Program Committee Chair, Offenburg University, Germany	
09:30-11:00	<i>Room 1</i>	<i>Room 2</i>
	Session A: Human Affect, Physiology & Biosignal Analysis Session Chair: Oliver Korn A-1 Affective Effects of Gamification. Using Biosignals to Measure the Effects on Working and Learning Users. (20 min) Oliver Korn & Adrian Rees A-2 Towards Skill Recognition using Eye-Hand Coordination in Industrial Production. (20 min) Michael Haslgrübler, Benedikt Gollan, Christian Thomay, Alois Ferscha & Josef Heftberger A-3 Acceptance and Sustainability of Health Promotion Solutions for the Elderly in Taiwan. (20 min) Irene Wu, Yu Ying, Cheng Shu-Jung, Wei-Ju Tu and Tung-Jung Sung A-4 Survey of Mood Detection Through Various Input Modes. (15 min) Rebecca Lietz, Meaghan Harraghy, Diane Calderon, James Brady, Eric Becker & Fillia Makedon A-5 The Role of Photoplethysmography in Identification of Mild Cognitive Impairment. (15 min) Migyeong Gwak, Ellen Woo & Majid Sarrafzadeh	Session B: Activity Recognition & Human Tracking Session Chair: Vassilis Athitsos B-1 Privacy-Aware Environmental Sound Classification for Indoor Human Activity Recognition. (20 min) Wei Wang, Fatjon Seraj, Nirvana Meratnia & Paul Havinga B-2 Deep Human Activity Recognition using Wearable Sensors. (15 min) Isah Abdullahi Lawal & Sophia Bano B-3 E-Textile Capacitive Electrodes: Fabric or Thread - Designing an E-Textile Cushion for Sitting Posture Detection. (15 min) Silvia Rus, Andreas Braun, Florian Kirchbuchner & Arjan Kuijper B-4 Designing a Self-Aware Jacket: Insights into Smart Garment's Creation Process. (20 min) Silvia Rus, Andreas Braun, Florian Kirchbuchner & Arjan Kuijper B-5 The Quantified Older Adult as Design Requirements for Accessible Wellbeing Interventions. (20 min) Andrew McNeill, Miglena Campbell & Lynne Coventry
11:05-12:45	Session C: Multimodal Interfaces and HCI Session Chair: Christian Thomay C-1 A Multi-Sensor Algorithm for Activity and Workflow Recognition in an Industrial Setting. (20 min) Christian Thomay, Benedikt Gollan, Michael Haslgrübler, Alois Ferscha & Josef Heftberger C-2 Engineered Perception Architecture for Healthcare. (20 min) Mihai Nadin & Asma Naz C-3 Low-Cost Tracking of Assembly Tasks in Industrial Environments. (20 min) Sebastian Pimminger, Werner Kurschl, Mirjam Augstein, Josef Altmann & Johann Heinzlreiter C-4 A Comprehensive Evaluation of Audio-Visual Behavior in Various Modes of Interviews in the Wild. (20 min) Sowmya Rasipuram & Dinesh Babu Jayagopi C-5 ExerciseCheck: A Scalable Platform for Remote Physical Therapy Deployed as a Hybrid Desktop and Web Application. (20 min) Shreya Pandit, San Tran, Yiwen Gu, Elham Saraee, Frederick Jansen, Saurabh Singh, Shirene Cao, Arezoo Sadeghi, Eugenia Shandelman, Terry Ellis & Margrit Betke	Session D: Wearable Systems and Monitoring Devices Session Chair: Apostolos Meliones D-1 ExerciseCheck: Data Analytics for a Remote Monitoring and Evaluation Platform for Home-Based Physical Therapy. (20 min) Elham Saraee, Yiwen Gu, Shreya Pandit, San Tran, Eugenia Shandelman, Saurabh Singh, Timothy Nordhal, Terry Ellis and Margrit Betke D-2 Understanding the Adoption of Quantified Self-Tracking Wearable Devices in the Organization Environment: An Empirical Case Study. (20 min) Jayden Khakurel, Mika Immonen, Jari Porras & Antti Knutas D-3 Study and Development of a Sonar Obstacle Recognition Algorithm for Outdoor Blind Navigation. (20 min) Apostolos Meliones & Jairo Llorente D-4 VibrAid: Comparing Temporal and Spatial Tactile Cues in Control Room Environments. (20 min) Erik Pescara, Vincent Diener & Michael Beigl D-5 Wearable Musical Haptic Sleeves for People with Hearing Impairment. (20 min) Urvish Trivedi, Alqasemi Redwan & Rajiv Dubey

12:45-14:15	Lunch Break & Doctoral Consortium Session 1 (<i>DC Students Only</i>)	
14:15-15:10	<u>Invited Talk</u> Presenter: Udo Frese, <i>University of Bremen, Germany</i> Title: <i>Inertial sensors - What are They, What They Measure, How They are Used and Why are They Important</i> Session Chair: Ahmad Lotfi	
15:15-15:30	Coffee Break	
15:30-16:00	Session P: Poster Presentations <i>(See Page 8 for List of Posters)</i> <i>Location: Hallway Corridor Outside the Conference Rooms</i>	
16:00-18:00	Session E: Accessibility Tools, Methods & Applications Session Chair: Barbara Leporini E-1 Is the Light On or Off? A Simple Auditory-Based Tool to Help Visually-Impaired People Check the Light Device Status. (15 min) Barbara Leporini, Michele Rosellini and Nicola Forgiione E-2 The Digital Cooking Coach: Using Visual and Auditory In-Situ Instructions to Assist Cognitively Impaired during Cooking. (20 min) Thomas Kosch, Kevin Wennrich, Daniel Topp, Marcel Muntzinger and Albrecht Schmidt E-3 Challenges of Comparing and Matching Roads from Different Spatial Datasets. (20 min) Mousa Almotairi, Tariq Alsahfi and Ramez Elmasri E-4 Launching Experiment-Driven Research and Maintaining Research Community for Assistive Technology: A look at Experiments in Presentations given to the Technical Committee on Well-being Information Technology. (15 min) Kazunori Minatani and Kahori Yokota E-5 A Reminder System for Independence in Dementia Care. (20 min) Karl-Ebbe Jönsson, Kajsa Ornstein, Jonas Christensen and Jeanette Eriksson E-6 SVGPlott: An Accessible Tool to Generate Highly Adaptable, Accessible Audio-Tactile Charts for and from Blind and Visually Impaired People. (20 min) Christin Engel, Emma Franziska Müller and Gerhard Weber	Session F: Reasoning Systems and Machine Learning Session Chair: Dimitrios Zikos F-1 Comorbidity Constructs for Patients with Congestive Heart Failure and their Effect on Hospital Outcomes of Care. (20 min) Dimitrios Zikos, Nailya Delellis, Stelios Zimeras, Neli Ragina and Olabisi Afolayan-Oloye F-2 American and Russian Sign Language Dactyl Recognition. (20 min) Ilya Makarov, Nikolay Veldyaykin, Maxim Chertkov and Aleksei Pokoev F-3 Data Generation Approaches for Topic Classification in Multilingual Spoken Dialog Systems. (20 min) Cesar Montenegro, Roberto Santana and Jose Antonio Lozano F-4 Deep Learning Based Face Recognition System with SmartGlasses. (20 min) Ovidiu Daescu, Hongyao Huang and Maxwell Weinzierl F-5 A Pipeline for Automated Face Dataset Creation from Unlabeled Images. (20 min) Zahra Anvari and Vassilis Athitsos F-6 Analysis of Hand Segmentation on Challenging Hand Over Face Scenario. (20 min) Sakher Ghanem, Ashiq Imran and Vassilis Athitsos
18:45-19:45	Welcome Reception <i>Location: Amphitheatre Square at Amilia Mare</i>	

09:00-09:55	Room 1	
	<p><u>DAEM Workshop Introduction & Invited Talk</u> Presenter: Oliver Korn, <i>Offenburg University of Applied Sciences, Germany</i> Title: <i>Assistive Systems at the Workplace: The Past, the Present - and the Future</i> Session Chair: Sebastian Büttner</p>	
10:00-12:45	<p>Room 1</p> <p>Workshop W1: <u>DAEM Workshop</u> <i>Workshop on Designing Assistive Environments for Manufacturing</i> Session Chairs: Sebastian Büttner and Mario Heinz</p> <p>W1-1 Lost in Translation: Machine Translation and Text-To-Speech in Industry 4.0. (20 min) Jean D. Hallewell Haslwanger, Michael Heiml and Josef Wolfartsberger</p> <p>W1-2 MAPVI: Meeting Accessibility for Persons with Visual Impairments. (20 min) Sebastian Günther, Reinhard Koutny, Naina Dhingra, Markus Funk, Christian Hirt, Klaus Miesenberger, Max Mühlhäuser and Andreas Kunz</p> <p>W1-3 APS: A 3D Human Body Posture Set as a Baseline for Posture Guidance. (20 min) Hesham Elsayed, Martin Weigel, Julius von Willich, Markus Funk and Max Mühlhäuser</p> <p>W1-4 A Task-Independent Design and Development Process for Cognitive Products in Industrial Applications. (20 min) Michaela Murauer, Florian Jungwirth, Bernhard Anzengruber, Ali Abbas Abdelrahman Ahmad, Behrooz Azadi, Jullius Cho, Helmut Ennsbrunner, Alois Ferscha, Detlef Gerhard, Benedikt Gollan, Michael Haslgrübler, Johannes Selymes, Georgios Sopidis, Matthias Stütz and Paul Weißenbach</p> <p>W1-5 Feasibility Analysis of Unsupervised Industrial Activity Recognition Based on a Frequent Micro Action. (20 min) Behrooz Azadi, Michael Haslgrübler, Georgios Sopidis, Michaela Murauer, Bernhard Anzengruber and Alois Ferscha</p> <p>W1-6 Evaluating Learning Approaches for Product Assembly. (20 min) Ellen Wilschut, Reinier Konemann, Molly Murphy, Gu van Rhijn and Tim Bosch</p> <p>W1-7 Drive By Maintenance: Towards Adaptive Work Environments with Improved Industrial HCI. (20 min) Andrei Miclaus, Erik Pescara, Alexander Mädche and Michael Beigl</p>	<p>Room 2</p> <p>Session G: Assistive Robotic Systems and HRI Session Chair: Maria Kyrarini</p> <p>G-1 Towards Robotic Drinking Assistance: Low Cost Multi-Sensor System to Limit Forces in Human-Robot-Interaction. (15 min) Tom Lucas Koller, Maria Kyrarini and Axel Gräser</p> <p>G-2 Adaptive Linguistic Style for an Assistive Robotic Health Companion Based on Explicit Human Feedback. (20 min) Hannes Ritschel, Andreas Seiderer, Kathrin Janowski, Stefan Wagner, Elisabeth Andre</p> <p>G-3 From Hand-Perspective Visual Information to Grasp Type Probabilities: Deep Learning via Ranking Labels. (20 min) Mo Han, Sezen Yagmur Gunay, Ilkay Yildiz, Paolo Bonato, Cagdas D. Onal, Taskin Padir, Gunar Schirner and Deniz Erdogmus</p> <p>G-4 System Architecture for Autonomous Mobile Manipulation of Everyday Objects in Domestic Environments. (20 min) Tarik Kelestemur, Naoki Yokoyama, Joanne Truong, Anas Abou Allaban and Taskin Padir</p> <p>Session H: Telepresence, Virtual and Augmented Reality Session Chair: Eric Becker</p> <p>H-1 Augmented Reality Action Assistance and Learning for Cognitively Impaired People - A Systematic Literature Review. (20 min) Jonas Blattgerste, Patrick Renner and Thies Pfeiffer</p> <p>H-2 Investigating Motion Sickness Techniques for Immersive Virtual Environments. (20 min) Roman Luksš and Fotis Liarokapis</p> <p>H-3 Evaluation of Different Types of Haptic Feedback Influencing the Task-Based Presence and Performance in Virtual Reality. (20 min) Julian Kreimeier, Sebastian Hammer, Daniel Friedmann, Pascal Karg, Clemens Bühner, Lukas Bankel and Timo Götzelmann</p> <p>H-4 A Virtual and Augmented Reality Platform for the Training of First Responders of the Ambulance Bus. (15 min) George Koutitas, Kenneth Smith, Grayson Lawrence, Vangelis Metsis, Clayton Stamper, Mark Trahan and Ted Lehr</p>
12:45-14:15	<p>Lunch Break & Doctoral Consortium Session 2 (DC Students Only)</p>	

	Room 1		Room 2
14:15-15:30	<p>Workshop W1: <u>DAEM Workshop</u> (continued)</p> <p>Session Chairs: Thomas Kosch and Mario Aehnelt</p> <p>W1-8 Ethnographic Study of a Commercially Available Augmented Reality HMD app for Industry Work Instruction. (20 min) Andrew Pringle, Stefanie Hutka, Jesse Mom, Robin Van Esch, Niall Heffernan and Paul Chen</p> <p>W1-9 Exploring Training Modes for Industrial Augmented Reality Learning. (15 min) Mario Heinz, Sebastian Büttner and Carsten Röcker</p> <p>W1-10 Deep Vision Shield: Assessing the Use of HMD and Wearable Sensors in a Smart Safety Device. (20 min) Sara Colombo, Yihyun Lim and Federico Casalegno</p> <p>W1-11 IIS: An Interactive Immersive Storytelling Framework for Vocational Training and Performance Assessment. (20 min) Sanika Gupta, Luke Owens, Konstantinos Tsiakas and Fillia Makedon</p>	14:15-15:30	<p>Workshop W2: <u>AR4U Workshop</u></p> <p><i>Workshop on Assistive Robots: Technological Challenges and the User Perspective</i></p> <p>Session Chairs: Eleni Efthimiou and Stavroula-Evita Fotinea</p> <p>W2-1 My Robot is Happy Today: How Older People with Mild Cognitive Impairments Understand Assistive Robots' Affective Output. (20 min) Margherita Antona, Danai Ioannidi, Michalis Foukarakis, Justyna Gerłowska, Konrad Rejdak, Carla Abdelnour, Joan Hernández, Natalia Tantinya and Natalia Roberto</p> <p>W2-2 User Centered Design in Practice: Adapting HRI to Real User Needs. (20 min) Eleni Efthimiou, Xanthi Papageorgiou, Stavroula-Evita Fotinea, Alexandra Karavasili, Anna Vacalopoulou and Theodore Goulas</p> <p>W2-3 RoRo - Robotor Rollator Project to Assist the Elderly and Caregivers. (20 min) Gerald Bieber and Wencke Chodan</p>
15:35-15:50	Coffee Break		
15:55-18:00	<p>Workshop W3: <u>SmartWork Workshop</u></p> <p><i>International Workshop on Smart, Personalized and Age-Friendly Working Environments</i></p> <p>Session Chair: Otilia Kocsis</p> <p>W3-1 SmartWork: Designing a Smart Age-Friendly Living and Working Environment for Office Workers. (20 min) Otilia Kocsis and Konstantinos Moustakas</p> <p>W3-2 Smart, Personalized and Adaptive ICT Solutions for Active, Healthy and Productive Ageing with Enhanced Workability. (20 min) Dimitrios Giakoumis, Konstantinos Votis, Efthymios Altsitsiadis, Sofia Segkouli, Ioannis Paliokas & Dimitrios Tzovaras</p> <p>W3-3 Conceptual Architecture of a Multi-Dimensional Modeling Framework for Older Office Workers. (20 min) Otilia Kocsis and Konstantinos Moustakas</p> <p>W3-4 Improving Face Recognition of Artificial Social Companions for Smart Working and Living Environments. (20 min) João Quintas</p> <p>W3-5 Pervasive Technologies Applied to the Work Environment: Implications for End-users. (20 min) Sofia Ortet, Carina Dantas, Natália Machado, Valentina Tagueo, João Quintas and Sonja Haansen</p> <p>W3-6 Older Workers, Technology and the Balance of Power: An Ethical Review. (20 min) Carina Dantas, Willeke van Staalduinen, Natália Machado, Ana Jegundo and Flávia Rodrigues</p>	15:55-18:00	<p>Workshop W4: <u>RoboSense Workshop</u></p> <p><i>Robotic Sensing in Human-Robot Interaction Workshop</i></p> <p>Session Chairs: Maria Kyrarini and Konstantinos Tsiakas</p> <p>W4-1 Data Mining and Knowledge Discovery from Physiological Sensors. (20 min) Nectarios Costadopoulos and Md Zahidul Islam</p> <p>W4-2 Physical Fatigue Detection through EMG Wearables and Subjective User Reports - A Machine Learning Approach Towards Adaptive Rehabilitation. (20 min) Michalis Papakostas, Varun Kanal, Maher Abujelala and Fillia Makedon</p> <p>W4-3 Feasibility Analysis of Sensor Modalities to Control a Robot with Eye and Head Movements for Assistive Tasks. (20 min) Jeroen Schäfer and Marion Gebhard</p> <p>W4-4 Importance of Effective Teaching in Robot Motor Skill Learning. (15 min) Joe Cloud, Michail Theofanidis, James Brady and Fillia Makedon</p> <p>W4-5 Towards a Robot-Based Multimodal Framework to Assess the Impact of Fatigue on User Behavior and Performance: A Pilot Study. (20 min) Akilesh Rajavenkatanarayanan, Varun Kanal, Konstantinos Tsiakas, James Brady, Diane Calderon, Glenn Wylie and Fillia Makedon</p>
20:45-22:45	<p>Farewell Party</p> <p><i>Location: Albatross Beach Bar</i></p>		

Room 1		
09:00-09:55	<p><u>Invited Talk</u></p> <p>Presenter: Tanja Schultz, <i>University of Bremen, Germany</i></p> <p>Title: <i>Biosignal-based Spoken Communication</i></p> <p>Session Chair: Fillia Makedon</p>	
10:00-12:45	Room 1	Room 2
	<p>Workshop W5: <u><i>AGENT Workshop</i></u></p> <p><i>Multimodal Signal Sensing and Analysis for Assistive Environments for Improving Quality-of-Life Workshop</i></p> <p>Session Chair: Kosmas Dimitropoulos</p> <p>W5-1 A Smart Dialogue-Competent Monitoring Framework Supporting People in Rehabilitation. (20 min) Thanassis Mavropoulos, Georgios Meditskos, Eleni Kamateri, Spyridon Symeonidis, Lefteris Papageorgiou, Dimitris Tzimikas, Christos Eleftheriadis Giorgos Adamopoulos, Stefanos Vrochidis and Ioannis Kompatsiaris</p> <p>W5-2 SeeSpeech: An Android Application for the Hearing Impaired. (20 min) Apostolos Meliones and Cosmin Duta</p> <p>W5-3 Detecting Hypomimia Symptoms by Selfie Photo Analysis. (20 min) Athina Grammatikopoulou, Nikos Grammalidis, Sevasti Bostanjopoulou and Zoe Katsarou</p> <p>W5-4 Motion Analysis of Parkinson Diseased Patients using a Video Game Approach. (20 min) Athina Grammatikopoulou, Kosmas Dimitropoulos, Sevasti Bostanjopoulou, Zoe Katsarou and Nikos Grammalidis</p> <p>W5-5 Designing a Web-Based Automatic Ergonomic Assessment using Motion Data. (20 min) Brenda Elizabeth Olivas Padilla, Alina Glushkova, Dimitrios Menychtas and Sotiris Manitsaris</p> <p>W5-6 A Novel Framework for Physical Therapy Rehabilitation Monitoring and Assessment in Parkinson Disease Patients using Depth Information. (20 min) Alberto Belmonte-Hernandez, Thomas Theodoridis, Marta Burgos Gonzalez, Gustavo Hernandez-Penaloza, Vassilios Solachidis, Jennifer Jimenez Ramos, Federico Alvarez, Nicholas Vretos, Laura Carrasco and Petros Daras</p> <p>W5-7 A Survey on AI Nutrition Recommender Systems. (20 min) Thomas Theodoridis, Vassilios Solachidis, Kosmas Dimitropoulos, Lazaros Gymnopoulos and Petros Daras</p> <p>W5-8 Nocturnal Respiration Pattern of Healthy People as a Hint for Sleep State Detection. (20 min) Silvio Krause, Marian Haescher, Wencke Chodan and Gerald Bieber</p>	<p>Workshop W6: <u><i>NOTION Workshop</i></u></p> <p><i>Human Behavior Monitoring, Interpretation and Understanding Workshop</i></p> <p>Session Chair: Ahmad Lotfi</p> <p>W6-1 Accent Classification in Human Speech Biometrics for Native and Non-native English Speakers. (20 min) Jordan J. Bird, Elizabeth Wanner, Aniko Ekart and Diego R. Faria</p> <p>W6-2 Long Short-Term Memory Fuzzy Finite State Machine for Human Activity Modelling. (20 min) Gadelhag Mohmed, Ahmad Lotfi and Amir Pourabdollah</p> <p>W6-3 Distinguishing Activities of Daily Living in a Multi-occupancy Environment. (20 min) Aadel Howedi, Ahmad Lotfi and Amir Pourabdollah</p> <p>W6-4 A Similarity Measure Approach for Identifying Causes of Anomaly in Activities of Daily Living. (20 min) Salisu Yahaya, Ahmad Lotfi and Mufti Mahmud</p> <p>W6-5 Temporal Convolution Neural Network for Food and Drink Intake Recognition. (20 min) Dario Ortega Anderez, Ahmad Lotfi and Amir Pourabdollah</p> <p>W6-6 Presenting a Data Imputation Concept to Support the Continuous Assessment of Human Vital Data and Activities. (20 min) Marian Haescher, Denys J.C. Matthies, Silvio Krause and Gerald Bieber</p> <p>W6-7 Fuzzy Transfer Learning of Human Activities in Heterogeneous Feature Spaces. (20 min) David Ada Adama, Ahmad Lotfi and Robert Ranson</p> <p>W6-8 Singular Race Models: Addressing Bias and Accuracy in Predicting Prisoner Recidivism. (20 min) Bhanu Jain, Manfred Huber, Leonidas Fegaras and Ramez Elmasri</p>
12:45-14:00	Lunch Break	

	Room 1	Room 2
14:00-15:40	<p>Workshop W7: <u>COACH Workshop</u></p> <p><i>Personalized Coaching for the Wellbeing of an Ageing Society Workshop</i></p> <p>Session Chair: Yordan Dimitrov</p> <p>W7-1 Social Activity Modelling and Multimodal Coaching for Active Aging. (20 min) Yordan Dimitrov, Zlatka Gospodinova, Martin Znidarsic, Bernard Zenko, Vera Veleva and Nadejda Miteva</p> <p>W7-2 Achieving Adherence in Home-Based Rehabilitation with Novel Human Machine Interactions that Stimulate Community-Dwelling Older Adults. (20 min) Dimitris Gatsios, Eleni I. Georga, Konstantina K. Kourou, Dimitrios I. Fotiadis, Dimitrios Kikidis, Athanasios Bibas, Christos Nikitas, Matthew Liston, Marousa Pavlou, Doris Eva Bamiou and Sergi Costafreda</p> <p>W7-3 The NESTORE e-Coach: Accompanying Older Adults through a Personalized Pathway to Wellbeing. (20 min) Leonardo Angelini, Elena Mugellini, Omar Abou Khaled, Christina Röcke, Sabrina Guye, Simone Porcelli, Alfonso Mastropietro, Giovanna Rizzo, Noemi Boqué, Josep M del Bas, Paula Subias, Silvia Orte and Giuseppe Andreoni</p> <p>W7-4 The EMPATHIC Project: Mid-term Achievements. (20 min) Maria Ines Torres, Stephan Schlögl, Gérard Chollet, Anna Esposito, Dijana Petrovska-Delacretaz, Maria Stylianou Korsnes, Escalera Sergio, Olivier Deroo and Jofre Tenorio-Laranga</p> <p>W7-5 Co-design the Future CAPTAIN System with Older Adults: Focusing on the E-Coaching Dimensions. (20 min) Despoina Petsani, Evdokimos Konstantinidis, Michalis Timoleon, Nikolaos Kiriakidis, Despoina Mantziari, Antonis Billis, Maria Nikolaidou, Vasiliki Zilidou and Panagiotis Bamidis</p>	<p>Doctoral Consortium Session 3</p> <p>Session Chair: Eric Becker</p> <p>This session is planned for all graduate students who participate in the Doctoral Consortium (DC) Program funded by the US National Science Foundation.</p> <p>The session is also open to non-DC students, both graduate and undergraduate, who are invited to participate.</p> <p>As this is the third and last session of the DC program, students will exchange and share experiences about the conference and make plans for next year's conference.</p> <p>Networking among DC and Non-DC students is encouraged, as well as sharing information about their research.</p> <p>Four students will be asked to provide a 4-minute presentation of their Ph.D. research and the audience will be asked to ask questions and provide feedback.</p> <p>The list of DC awardees is found on the back of this program.</p>
15:45-16:00	<p>Conference Closing & Awards Ceremony</p> <p><i>Room 1</i></p>	

Accepted Posters (Session P)

P1. *An investigation into human-autonomous vs. human-human vehicle interaction in time-critical situations.*

Alexander Trende, Anirudh Unni, Lars Weber, Jochem W. Rieger and Andreas Luedtke

P2. *Towards an Adaptive Gaming Framework for TeleRehabilitation.* Imad Afyouni, Anas Einea and Abdullah Murad

P3. *Spiking Networks for Improved Cognitive Abilities of Edge Computing Devices.* Anton Akusok, Kaj-Mikael Björk, Leonardo Espinosa Leal, Yoan Miche, Renjie Hu and Amaury Lendasse

P4. *Car Steering in Racing Games: Similar Performance with Joysticks and Keyboards.* Birk Knut Astrup, Viktor Danielsen, Kristian Ludvig Grønbold, Alexander William Ingvarsson Hals, Andreas Klothmann and Frode Eika Sandnes

P5. *Integrating kitchen appliances to improve food quality and sustainability: the SIAP project.* Valeria Orso, Alessandro Sperduti and Luciano Gamberini

P6. *Applying Software Variability Methods to Design Adaptive Assistance Robots.* David Gollasch, Christin Engel, Meinhardt Branig and Gerhard Weber

P7. *Towards Accessible Representations of Time: Learning from the Preferences of Children and Adults.* Hamza Ali, Gursharn Singh and Frode Eika Sandnes

P8. *A Review of Wearable Heart Rate Sensors in Research.* Meaghan Harraghy, Diane Calderon, Rebecca Lietz, James Brady, Fillia Makedon and Eric Becker

P9. *Insights on Usability and User Feedback for an Assistive Robotic Health Companion with Adaptive Linguistic Style.* Hannes Ritschel, Kathrin Janowski, Andreas Seiderer, Stefan Wagner and Elisabeth Andre

P10. *Constructing a Japanese Sign Language Database and Developing Its Viewer.* Yuji Nagashima

P11. *Recognizing the quality of urban sound recordings using hand-crafted and deep audio features.* Theodoros Giannakopoulos and Stavros Perantonis

P12. *An Image Representation of Skeletal Data for Action Recognition using Convolutional Neural Networks.* Ioannis Vernikos, Eirini Mathe, Antonios Papadakis, Evangelos Spyrou and Phivos Mylonas

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