

The 10th ACM International Conference on PErvasive Technologies Related to Assistive Environments

PETRA 2017

Conference Program

June 21–23, 2017
Island of Rhodes, Greece

Organized by

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

With sponsorship from:

The National Science Foundation (NSF), USA

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

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

The iPerform Industry-University NSF Center at UTA

The National Center for Scientific Research (NCSR)-Demokritos, Greece



Dear Colleagues,

Welcome to the *10th ACM International Conference on Pervasive Technologies Related to Assistive Environments*, June 21-23, 2017 on the Island of 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. Vangelis Karkaletsis is the head of the Software and Knowledge Engineering Laboratory (SKEL) of the Institute of Informatics and Telecommunications at NCSR "Demokritos", and responsible for the Institute's educational activities. His research interests are in the areas of Language and Knowledge Engineering, as applied to content analysis, natural language interfaces, ontology engineering. He has extensive experience in the coordination and technical management of European and national projects. He is currently coordinator of the H2020 RADIO project on the use of robots in assisted living environments.



Dr. Roberta Annicchiario is a geriatrician, medical assistant at Fondazione S. Lucia, Rome since 2002. She is the director of the Technology-assisted neuro-rehabilitation Laboratory at Fondazione Santa Lucia. Her main research interests are the disability correlates of chronic diseases, and possible clinical applications of new technologies. She has been the principal investigator in several international European Union (EU) funded projects (VI FP, VII FP and Horizon 2020). She is also a Professor of Geriatrics at the School of Physiotherapy, University "Tor Vergata" in Rome and a Professor of Internal Medicine at the School of Speech Therapy, at the University "Tor Vergata" in Rome.



Dr. Cornelia Caragea is an Assistant Professor at the University of North Texas in the Computer Science and Engineering department, where she directs the Machine Learning group. She received her Ph.D. in Computer Science from Iowa State University and her B.S. in Computer Science and Mathematics from the University of Bucharest. Her research interests lie at the intersection of artificial intelligence, machine learning, information retrieval, and natural language processing, with applications to text and image analysis, and social media. Caragea's work has been recognized with several NSF research awards, including an NSF CAREER award.



Dr. Andreas Mershin is a Research Scientist at the MIT Center for Bits and Atoms. He leads the Label Free research group with projects related to wearable biosensing such as machine olfaction, bioenergy harvesting, EEG pain sensing, neurofeedback and synthetic cell microfluidics. His research and the technologies it has spawned are used by industry and government, exhibited at the Boston Museum of Science and Designer Open Exhibition. He holds over a dozen US patents and his work is globally covered by media including CNN, BBC, NYT, Discovery Channel, Wired, New Scientist, Nature and Science. Also, he is the co-founder and director emeritus of the international Molecular Frontiers Inquiry Prize (MFIP) awarded annually at the Royal Swedish Academy of Sciences in Stockholm to the most intriguing scientific questions posed by children.



Dr. Taşkın Padır is the Director of the Robotics and Intelligent Vehicles Research Laboratory (RIVeR Lab) at Northeastern University. He is an Associate Professor of Electrical and Computer Engineering at Northeastern. He holds Ph.D. and M.S. degrees from Purdue University. His research interests include human-in-the-loop robot control, medical cyber-physical systems, and intelligent vehicles.

FIRST DAY: June 21

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|-------------|--|--|
| | Room 1 | |
| 09:00-09:30 | <p align="center">Conference Opening</p> <p align="center">Fillia Makedon, <i>Conference Chair</i>, University of Texas Arlington, USA Vassilis Athitsos, <i>Program Committee Chair</i>, University of Texas Arlington, USA</p> | |
| 09:30-10:30 | <p>Session A: <u>Invited Lecture</u>: Speaker: <i>Vangelis Karkaletsis</i>, (Institute of Informatics and Telecommunications at NCSR "Demokritos", Greece) Title: “<i>RADIO Home: an integrated smart home and assistant robot clinical monitoring environment</i>” Session Chair: <i>Fillia Makedon</i></p> | |
| 10:30-10:50 | Coffee Break | |
| | Room 1 | Room 2 |
| 10:50-12:25 | <p>Session B: <u>Accessibility Tools, Methods and Applications</u> Session Chair: <i>Timo Götzelmann</i></p> <p>B-1 - <i>A Personal Computer-based Approach for 3D Printing Accessible to Blind People</i>. (15 min) Timo Götzelmann, Lisa Branz, Claudia Heidenreich and Markus Otto</p> <p>B-2 - <i>TOF Tactile Stamps - Drawing Object Silhouettes through Depth Segmentation by Blind People</i>. (15 min) Jens Bornschein, Lukas Förster and Denise Bornschein</p> <p>B-3 - <i>A Survey of Outdoor Travel for Visually Impaired People Who Live in Latin-American Region</i>. (15 min) Mauro Avila and Limin Zeng</p> <p>B-4 - <i>Interactive Assistive Framework for Maximum Profit Routing in Public Transportation in Smart Cities</i>. (15 min) Bogdan Armaselu and Ovidiu Daescu</p> <p>B-5 - <i>Indoor Blind Navigator: A Use Case for Self-Guided Tours in Museums</i>. (15 min) Apostolos Meliones and Demetrios Sampson</p> <p>B-6 - <i>Digital Drawing Tools for Blind Users - A State-of-the-Art and Requirement Analysis</i>. (20 min) Jens Bornschein and Gerhard Weber</p> | <p>Session C: <u>Assistive Robotic Systems and Human-Robot Interaction</u> Session Chair: <i>Helen Petrie</i></p> <p>C-1 – <u>Invited Presentation</u>: <i>Human in the Loop Robot Control Applications</i> (20 min) Speaker: <i>Taskin Padir</i> (Northeastern University)</p> <p>C-2 - <i>Older people and robotic technologies in the home: perspectives from recent research literature</i>. (20 min) Helen Petrie and Jenny Darzentas</p> <p>C-3 - <i>Towards More Robust Automatic Facial Expression Recognition in Smart Environments</i>. (20 min) Arne Bernin, Larissa Müller, Sobin Ghose, Christos Grecos, Qi Wang, and Florian Vogt</p> <p>C-4 - <i>Survey Data Analysis for Repositioning, Transferring, and Personal Care Robots</i>. (20 min) Kavita Krishnaswamy, Srinivas Moorthy and Tim Oates</p> <p>C-5 - <i>Co-Designing a Recommender System for the Elderly</i>. (15 min) Madita Herpich, Thomas Rist and Elisabeth André</p> |
| 12:25-13:40 | Lunch Break | |

FIRST DAY: June 21

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|-------------|---|---|
| 13:40-14:40 | Poster Session & Coffee Break | |
| | Room 1 | Room 2 |
| 14:40-16:10 | <p>Session D: <u>Telepresence, Virtual and Augmented Reality</u> Session Chair: Gerald Bieber</p> <p>D-1 - Motion Instruction Method Using Head Motion-Associated Virtual Stereo Rearview. (15 min) Yoshihiko Nomura, Hiroaki Fukuoka, Ryota Sakamoto and Tokuhiko Sugiura</p> <p>D-2 - Transradial Prosthesis Performance Enhanced with the Use of a Computer Assisted Rehabilitation Environment. (15 min) Ashley Knight, Stephanie Carey and Rajiv Dubey</p> <p>D-3 - A 3D Printable Hand Exoskeleton for the Haptic Exploration of Virtual 3D Scenes. (15 min) Timo Götzelmann</p> <p>D-4 - Designing Smart Home Interfaces: Traditional vs Virtual Prototyping. (20 min) Silvia Ceccacci and Maura Mengoni</p> <p>D-5 - Comparing Conventional and Augmented Reality Instructions for Manual Assembly Tasks. (20 min) Jonas Blattgerste, Benjamin Streng, Patrick Renner, Thies Pfeiffer and Kai Essig</p> | <p>Session E: <u>Pervasive Systems for the Aged & Smart Health Devices</u> Session Chair: Mihai Burzo</p> <p>E-1 - Maintaining multiple sclerosis patients' quality of life – a case study on environment control assistance in a smart home. (15 min) Christoph Stahl and Pascal Laub</p> <p>E-2 - ExerciseCheck: Remote Monitoring and Evaluation Platform for Home Based Physical Therapy. (15 min) Elham Saraee, Saurabh Singh, Kathryn Hendron, Mingxin Zheng, Ajjen Joshi, Terry Ellis and Margrit Betke</p> <p>E-3 - Finding a Holistic Design for Elderly People to Type on Smartphones. (20 min) Li Liu, Edward Dillon and Jingyuan Zhang</p> <p>E-4 - Functional privacy concerns of older adults about pervasive health-monitoring systems. (20 min) Andrew McNeill, Pam Briggs, Jake Pywell and Lynne Coventry</p> <p>E-5 - Sharable Personal Automations for Ambient Assisted Living. (20 min) Yannis Valsamakis and Anthony Savidis</p> |
| 16:10-16:50 | <p>PANEL: NSF (CRI) Sponsored Title: <i>Creating Research Datasets and Tools</i> Panel chair: Fillia Makedon Panelists: Vassilis Athitsos, Mihai Burzo, Rada Mihalcea, Vangelis Metsis, Dimitrios Zikos, Eric Becker and Christopher Conly</p> | |
| 16:50-17:50 | <p>Special Session <u>(DC Students Only)</u> <u>1st NSF Doctoral Consortium Session (Room 3)</u> DC Faculty: Eric Becker (DC Chair), Christopher Conly (DC Associate Chair), Vangelis Metsis and Dimitrios Zikos</p> | |
| 18:00-19:00 | Pre-dinner Welcome Reception (<i>Location: Animation stage</i>) | |

SECOND DAY: June 22

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| | Room 1 | |
| 09:00-10:00 | Session F: <u>Invited Lecture</u>: Speaker: <i>Roberta Annicchiarico</i>, (Santa Lucia Foundation, IRCCS, Italy) Title: “Supporting elderly in their homes: the role of Assistive Technology” Session Chair: <i>Rada Mihalcea</i> | |
| 10:00-10:20 | Coffee Break | |
| | Room 1 | Room 2 |
| 10:20-12:05 | Session G: <u>Activity Recognition</u> Session Chair: <i>Vassilis Athitsos</i> G-1 – <u>Invited Presentation</u>: <i>Improving disaster response through the eyes of social media</i> (30 min) Speaker: <i>Cornelia Caragea</i> (University of North Texas, USA) G-2 - <i>A Combined Stochastic Memory Model for ADL Detection.</i> (15 min) Jana Clement and Klaus Kabitzsch G-3 - <i>Markerless 3D Human Pose Estimation and Tracking based on RGBD Cameras: an Experimental Evaluation.</i> (20 min) Damien Michel, Ammar Qammar and Antonis Argyros G-4 - <i>Extracting Context Information from Wi-Fi Captures.</i> (20 min) Lorenz Schauer and Claudia Linnhoff-Popien G-5 - <i>Providing Meaningful Alignments for Periodic Signs.</i> (20 min) Alex Dillhoff, Himanshu Pahwa, Chris Conly and Vassilis Athitsos | Session H: <u>Wearable Systems and Monitoring Devices</u> Workshop Chair: Session Chair: <i>Peter Klein</i> H-1 - Reminder objects in the connected home of the future and beyond. (15 min) Martina Uhlig, Henrik Rieß and Peter Klein H-2 - Usability study of a brain-computer interface applied to people with cerebral palsy. (15 min) Jéferson Fernandes Da Silva, Ana Carolina Savall and Alejandro Rafael Garcia Ramirez H-3 - Detecting Human Thermal Discomfort via Physiological Signals. (15 min) Mohamed Abouelenien, Mihai Burzo, Rada Mihalcea, Kristen Rusinek and David Alstine H-4 - Irregular Gait Detection using Wearable Sensors. (20 min) Andreas Lydakis, Pei-Chun Kao and Momotaz Begum H-5 - Evaluation of a Head-Tracking Pointing Device for Users with Motor Disabilities. (20 min) Andreia Rodrigues, Vinicius Da Costa, Rafael Cardoso, Marcio Machado, Marcelo Machado and Tatiana Tavares H-6 - Safety++. Designing IoT and Wearable systems for Industrial Safety through a User Centered Design Approach. (20 min) Guillermo Bernal, Sara Colombo, Mohammed M Al Ai Baky and Federico Casalegno |
| 12:05-13:30 | Lunch Break | |

SECOND DAY: June 22

| | Room 1 | Room 2 |
|-------------|---|--|
| 13:30-14:50 | <p>Session W1: (SoCiaL) <u>Smart cities & Smart mobility towards improving quality of life & Well-being Workshop</u></p> <p>Session Chair: Jorge Bandeira</p> <p>W1-1 - <u>Invited Presentation:</u> <i>Intelligent Transportation Systems for a safe, smooth and less polluted road environment – Research Challenges</i> (20 min)</p> <p>Speaker: Prof. Margarida Coelho (University of Aveiro, Portugal)</p> <p>W1-2 - Interregional European Cooperation platform to promote sustainable transport through ICT – an overview of best practices. (15 min) Pavlos Tafidis and Jorge Marto Bandeira</p> <p>W1-3 - Lessons Learnt from the analysis of a bike sharing system. (15 min) Dimitrios Tomaras, Ioannis Boutsis and Vana Kalogeraki</p> <p>W1-4 - Efficient Parking Allocation for SmartCities. (15 min) Ellen Mitsopoulou and Vana Kalogeraki</p> | <p>Session I: <u>Reasoning Systems and Machine Learning for Assistive Environments</u></p> <p>Session Chair: Vangelis Metsis</p> <p>I-1 - A Survey on Sign Language Recognition using Smartphones. (20 min) Sakher Ghanem, Christopher Conly and Vassilis Athitsos</p> <p>I-2 - Improving the Accuracy of the CogniLearn System for Cognitive Behavior Assessment. (15 min) Amir Ghaderi, Srujana Gattupalli, Dylan Ebert, Ali Sharifara, Vassilis Athitsos and Fillia Makedon</p> <p>I-3 - Classification of Emotional Arousal During Multimedia Exposure. (15 min) Adam Anderson, Thomas Hsiao and Vangelis Metsis</p> <p>I-4 - A Framework to Design Successful Clinical Decision Support Systems. (15 min) Dimitrios Zikos</p> <p>I-5 - Brute-force Missing Data Extreme Learning Machine for Predicting Huntington's Disease. (15 min) Anton Akusok, Emil Eirola, Kaj-Mikael Björk, Yoan Miche, Hans Johnson and Amaury Lendasse</p> |
| 14:50-15:30 | <p>Coffee Break & <u>2nd NSF Doctoral Consortium Session (Room 3)</u></p> <p><i>DC Faculty: Eric Becker (DC Chair), Christopher Conly (DC Associate Chair), Vangelis Metsis and Dimitrios Zikos</i></p> | |

SECOND DAY: June 22

| | Room 1 | Room 2 | Room 3 |
|-------------|--|---|--|
| 15:30-17:30 | <p><u>Session W2: (NOTION) Human Behaviour Monitoring, Interpretation and Understanding Workshop</u></p> <p>Session Chair: Ahmad Lotfi</p> <p>W2-1 - A Hierarchical Approach towards Activity Recognition. (20 min) Dario Ortega Anderrez, Kofi Appiah, Ahmad Lotfi and Caroline Langensiepen</p> <p>W2-2 - Active and Healthy Ageing: Development of a Robotic Platform as an Exercise Trainer. (20 min) Ahmad Lotfi, Caroline Langensiepen and Yahaya Salisu Wada</p> <p>W2-3 - A Fitness Monitoring System based on Fusion of Visual and Sensorial Information. (20 min) Michalis Papakostas, Theodore Giannakopoulos and Vangelis Karkaletsis</p> <p>W2-4 - Learning Human Activities for Assisted Living Robotics. (20 min) David Ada Adama, Ahmad Lotfi, Caroline Langensiepen, Kevin Lee and Pedro Trindade</p> <p>W2-5 - Trend Analysis Techniques in Forecasting Human Behaviour Evolution. (20 min) Abubaker Elbayoudi, Ahmad Lotfi, Caroline Langensiepen and Kofi Appiah</p> <p>W2-6 - Towards the Development of Affective Facial Expression Recognition for Human-Robot Interaction. (20 min) Diego Faria, Mario Vieira and Fernanda Faria</p> | <p><u>Session W3: (PerInt) Pervasive Intelligence in Engineering Workshop</u></p> <p>Session Chair: Nikolaos Doulamis</p> <p>W3-1 - A Study on the Use of Kinect Sensor in Traditional Folk Dances Recognition via Posture Analysis. (20 min) Eftychios Protopapadakis, Athanasios Voulodimos, Anastasios Doulamis and Stephanos Camarinopoulos</p> <p>W3-2 - Human Object Detection using Very Low Resolution Thermal Cameras for Urban Search and Rescue. (20 min) Nikolaos Doulamis, Panagiotis Agrafiotis, George Athanasiou and Angelos Amditis</p> <p>W3-3 - Fast Head-Shoulder Proposal for Scare-Aware Pedestrian Detection. (20 min) Tianrui Liu and Tania Stathaki</p> <p>W3-4 - Requirements collection for the design and development of a pervasive water quality monitoring photonic device. (20 min) Eftychios Protopapadakis, Athanasios Voulodimos, Nikolaos Doulamis and Matthaïos Bimpas</p> <p>W3-5 - Providing Certified Paths for Safe Port Operation: The e-Mariner paradigm. (15 min) Nikolaos Bakalos, Marc Bonazountas, Valantis Tsiakos and Vasilis Hadjipanos</p> <p>W3-6 - Muscle Synergy-based Grasp Classification for Robotic Hand Prosthetics. (15 min) Sezen Gunay, Fernando Quivira and Deniz Erdogmus</p> | <p><u>Session J: Multimodal Interfaces and Human-Computer Interaction</u></p> <p>Session Chair: Oliver Korn</p> <p>J-1 - Use Case Focused User-Interaction Diagram - A Communication Tool within AAL Projects. (15 min) Daniela Krainer, Daniela Elisabeth Ströckl and Johannes Oberzaucher</p> <p>J-2 - Analysis of Tactile Chart Design. (15 min) Christin Engel and Gerhard Weber</p> <p>J-3 - Issues in the Development of AAL Systems: What experts think. (20 min) Jean D. Hallewell Haslwanter and Geraldine Fitzpatrick</p> <p>J-4 - Strategies for Playful Design when Gamifying Rehabilitation. A Study on User Experience. (20 min) Oliver Korn and Stefan Tietz</p> <p>J-5 - VARM: Using Virtual Reality to Program Robotic Manipulators. (20 min) Michail Theofanidis, Saif Iftekar Sayed, Alexandros Lioulemes and Fillia Makedon</p> <p>J-6 - Working with Augmented Reality? A Long-Term Analysis of In-Situ Instructions at the Assembly Workplace. (20 min) Markus Funk, Andreas Bächler, Liane Bächler, Thomas Kosch, Thomas Heidenreich and Albrecht Schmidt</p> |
| 20:30-22:30 | <p><i>Post Dinner PETRA Party: Live Entertainment with Professional Music and Dance Group Teaching Greek Folk Dancing!</i> <i>(Location: Albatros Swimming Pool Area)</i></p> | | |

THIRD DAY: June 23

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|-------------|--|---|
| | Room 1 | |
| 9:00-10:00 | Session K: <u>Invited Lecture</u>: Speaker: <i>Andreas Mershin</i>, (MIT, USA) Title: “Self Calibrating Protocols for Wearables and Personalized Machine Learning” Session Chair: <i>Vassilis Athitsos</i> | |
| | Room 1 | Room 2 |
| 10:05-11:30 | Session W4: <u>Assistive Robots: Technological Challenges and the User Perspective Workshop</u> (<i>Part 1</i>) Session Chair: <i>Eleni Efthimiou</i> W4-1 - A first prototype of a space model of cultural meaning by natural-language human-robot interaction. (20 min) Oliver Schürer, Benjamin Stangl, Christoph Müller and Christoph Hubatschke W4-2 - An Interactive Robot-based Vocational Assessment Game using Lego Assembly. (20 min) Christopher Collander, Joseph Tompkins, Alexandros Lioulemes, Michail Theofanidis, Ali Sharifara and Fillia Makedon W4-3 - User Evaluation of the MOBOT rollator type robotic mobility assistive device. (20 min) Yiannis Koumpouros, Alexandra Karavasili, Eleni Efthimiou, Stavroula-Evita Fotinea, Theodore Goulas and Anna Vacalopoulou W4-4 - Intelligent Assistive Robotic Systems for the elderly: Two real-life use cases. (20 min) Xanthi S. Papageorgiou, Georgia Chalvatzaki, Athanasios Dometios, Costas Tzafestas and Petros Maragos | Session W5: <u>(ADH) Assistive Technologies for Decision making in Healthcare Workshop</u> Session Chair: <i>Dimitrios Zikos</i> W5-1 - Rewind/Remind - A cognitive tool for people with associative memory deficits. (15 min) Theodora Toutountzi, Cheryl Abellanoza, Arnav Garg, Dylan Ebert and Fillia Makedon W5-2 - Mining disproportional itemsets for characterizing groups of heart failure patients from administrative health records. (15 min) Isak Karlsson, Panagiotis Papapetrou, Lars Asker, Henrik Boström and Hans Persson W5-3 - A Specialized Interactive Data Application for EEG- Based Sleep Studies. (15 min) George Panagopoulos and Cara A. Palmer W5-4 - SARA – Subjective and Objective data Acquisition for Physiotherapy Treatment Support. (20 min) Gerald Bieber, Robert Seidel and Rene Portwich W5-5 - Adjusting Home Health Rankings by Proprietary Status, to Assist Patients Select Quality Services. (15 min) Dimitrios Zikos and Nailia Delellis |
| 11:30-13:00 | Lunch Break & <u>3rd NSF Doctoral Consortium Session (Room 3)</u> <i>DC Faculty: Eric Becker (DC Chair), Christopher Conly (DC Associate Chair), Vangelis Metsis and Dimitrios Zikos</i> | |

THIRD DAY: June 23

| | Room 1 | Room 2 |
|---|---|---|
| 13:00-14:40 | <p>Session W4: <u>Assistive Robots: Technological Challenges and the User Perspective Workshop</u> (Part 2)</p> <p>Session Chair: Eleni Efthimiou</p> <p>W4- 5- Automatic action recognition for assistive robots to support MCI patients at home. (20 min) Georgios Stavropoulos, Dimitrios Giakoumis, Konstantinos Moustakas and Dimitrios Tzovaras</p> <p>W4-6 - Understanding Older Adult’s Perceptions of Factors that Support Trust in Human and Robot Care Providers. (20 min) Rachel Stuck and Wendy Rogers</p> <p>W4-7 - Applying a Multimodal User Interface Development Framework on a Domestic Service Robot. (20 min) Michalis Foukarakis, Margherita Antona and Constantine Stephanidis</p> <p>W4-8 - Towards Autonomous Grasping with Robotic Prosthetic Hands. (20 min) Aykut Onol and Taskin Padir</p> | <p>Session W6: <u>(DAEM) Designing Assistive Environments for Manufacturing Workshop</u></p> <p>Session Chair: Henrik Mucha</p> <p>W6-1 - The effects of projected versus display instructions on productivity, quality and workload in a simulated assembly task. (15 min) Tim Bosch, Reinier Konemann, Hans de Cock and Gu van Rhijn</p> <p>W6-2 - Demand Analysis for an Augmented Reality based Assembly Training. (20 min) Stefan Werrlich, Kai Nitsche and Gunther Notni</p> <p>W6-3 - An Interactive Multisensing Framework for Personalized Human Robot Collaboration and Assistive Training Using Reinforcement Learning. (20 min) Konstantinos Tsiakas , Michalis Papakostas, Michail Theofanidis, Morris Bell, Rada Mihalcea, Shouyi Wang, Mihai Burzo, and Fillia Makedon</p> <p>W6-4 - Bridging the skills gap of workers in Industry 4.0 by human performance augmentation tools - Challenges and roadmap. (20 min) Eric Ras, Fridolin Wild, Christoph Stahl and Alexandre Baudet</p> <p>W6-5 - The Design Space of Augmented and Virtual Reality Applications for Assistive Environments in Manufacturing: A Visual Approach. (20 min) Sebastian Büttner, Henrik Mucha, Markus Funk, Thomas Kosch, Mario Aehnelt, Sebastian Robert and Carsten Röcker</p> |
| 14:40-15:00 | Coffee Break | |
| | Room 1 | |
| 15:00-15:40 | <p>Special Panel: <u>Data Privacy for Pervasive Technologies Related to Assistive Environments</u></p> <p>Speakers: Anthony E Kelly (US National Science Foundation, USA) Simson Garfinkel (US Census Bureau, USA)</p> <p>Session Chair: Vangelis Metsis and Fillia Makedon</p> | |
| 15:40-16:00 | <p>Conference Closing & Awards Ceremony</p> <p><i>Best Technical Paper; Best Paper for Novelty; Best Student Paper; Best Poster Paper</i></p> | |
| <p>Please Take the Online Survey</p> <p>www.petrae.org/survey</p> | | |
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Accepted Posters

- P1. Towards an Augmented Reality and Sensor-Based Assistive System for Assembly Tasks.** Josef Wolfartsberger, Jan Zenisek, Mathias Silmbroth and Christoph Sievi
- P2. IoT Interface for Healthcare applications.** Konstantinos Michalakakis and George Caridakis
- P3. Real-Life Guards for Human-Centered Systems.** Nikola Serbedzija
- P4. CBREN: Computer Brain Entertainment System Using Neural Feedback Cognitive Enhancement.** Karthikeyan Rajamani, Adhavann Ramalingam, Srinivas Mahaveer Dutt Bavisetti and Maher Abujelala
- P5. Emergency Response Cyber-Physical System for Disaster Prevention with Sustainable Electronics.** Vania Estrela, Osamu Saotome, Jude Hemanth and Rui Cabral
- P6. Enhanced Facial Recognition Framework based on Skin Tone and False Alarm Rejection.** Ali Sharifara, Mohd Shafry Mohd Rahim, Farhad Navabifar, Dylan Ebert, Amir Ghaderi and Michalis Papakostas
- P7. A low-cost virtual reality wheelchair simulator.** Lars Y. Sørensen and John P. Hansen
- P8. TanMath: A Tangible Math Application to support children with visual impairment to learn basic Arithmetic.** Mauro Avila Soto, Elba Del Carmen Valderrama-Bahamondez and Albrecht Schmidt
- P9. Modeling Human Adaptation in Repeated Collaborative Tasks.** Stefanos Nikolaidis and Siddhartha Srinivasa
- P10. MyoLearn: Using a multimodal armband sensor for vocational safety problem identification.** Dylan Ebert and Fillia Makedon
- P11. Human Comfort and Skill Evaluation During Interaction with PAMV.** Dmitry Kochubey and Petr Tuma
- P12. Distribution of Language Measures among Individuals with and without Non-fluent Aphasia.** Paula Garcia
- P13. A Prototype for Visual Content Development and Real-time Motion Tracking.** Karina Abramova, Andrea Corradini and Jesper Nordentoft

| Program Committee Chairs |
|---|
| <p>Vassilis Athitsos (Chair) – <i>University of Texas at Arlington, USA</i> Mihai Burzo (Associate Chair) – <i>University of Michigan-Flint, USA</i> Rada Mihalcea (Associate Chair) – <i>University of Michigan, USA</i></p> |
| Program Committee |
| <p>Mohamed Abouelenien – <i>University of Michigan, USA</i> Antonis Argyros – <i>ICS-FORTH, Greece</i> Eric Becker – <i>Univ. of Texas at Dallas, USA</i> Margrit Betke – <i>Boston Univ., USA</i> Gerald Bieber – <i>Fraunhofer IGD, Germany</i> Antonis Billis – <i>Aristotle Univ. of Thessaloniki, Greece</i> Guanling Chen – <i>Univ. of Massachusetts, USA</i> Diane Cook – <i>Washington State Univ., USA</i> Lynne Coventry – <i>Northumbria University, UK</i> Anastasios Doulamis – <i>National Technical Univ. of Athens, Greece</i> Marouane El Mabrouk – <i>Abdelmalek Essaadi University, Morocco</i> Vania Estrela – <i>Federal Fluminense University, Brazil</i> Xiaohu Guo – <i>UT Dallas, USA</i> Timo Götzelmann – <i>Nuremberg Institute of Tech., Germany</i> Jaako Hollmen – <i>Aalto Univ., Finland</i> Haiying Huang – <i>UT Arlington, USA</i> Sarantos Kapidakis – <i>Ionian Univ., Greece</i> Vangelis Karkaletsis – <i>N.C.S.R. DEMOKRITOS, Greece</i> Oliver Korn – <i>Offenburg Univ., Germany</i> Zhengyi Le – <i>Suning R&D Center, Palo Alto, USA</i> Ahmad Lotfi – <i>Nottingham Trent Univ., United Kingdom</i> Ilias Maglogiannis – <i>Univ. of Piraeus, Greece</i> Sergio Mascetti – <i>Univ. of Milan, Italy</i> Andreas Mershin – <i>MIT, USA</i> Vangelis Metsis – <i>Texas State Univ., USA</i> Mohd Shafry Mohd Rahim – <i>University of Technology, Malaysia</i> Alexandros Papangelis – <i>Toshiba Research - Europe, UK</i> Panagiotis Papapetrou – <i>Stockholm Univ., Sweden</i> Ali Sharifara – <i>Univ. of Texas at Arlington, USA</i> Ghazali Sulong – <i>University of Technology, Malaysia</i> Matthew Taylor – <i>Washington State Univ., USA</i> Kim Yelin – <i>Univ. at Albany, SUNY, USA</i> Mazdak Zamani – <i>Kean University, USA</i> Sheng Zhang – <i>Google, USA</i> Dimitris Zikos – <i>Central Michigan Univ., USA</i></p> |
| Secondary Reviewers |
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