IEEE/ACM CHASE 2021 Conference Program

Day 1 (Thursday, December 16, 2021) - Conference

7:30-8:15	**Breakfast**
8:15-8:30	**Open Remarks:** Kewei Sha (University of Houston-Clear Lake), Guoliang Xing (The Chinese University of Hong Kong), Curtis Edward Kennedy (Baylor College of Medicine), Jiayu Zhou (Michigan State University)
8:30-9:30	**Keynote Speech:** *Towards Ambient Intelligence in Smart Healthcare* Keynote Speaker: John A. Stankovic (BP America Professor, Computer Science Department, University of Virginia, Life Fellow of the IEEE, Fellow of the ACM) Session Chair: Gang Zhou (William & Mary, USA)
9:30-9:45	**Coffee Break**
9:45-11:05	**Conference Session 1:** *Predictive Models for Disease Detection I* Session Chair: VP Nguyen (University of Texas at Arlington, vp.nguyen@uta.edu) 1. TremorSense: Tremor Detection for Parkinson's Disease Using Convolutional Neural Network Minglong Sun (William & Mary, USA); Amanda Watson (University of Pennsylvania, USA); Gina Blackwell (Virginia Commonwealth University, USA); Woosub Jung (William & Mary, USA); Shuangquan Wang (Salisbury University, USA); Kenneth Koltermann (William & Mary, USA); Noah Helm (Virginia Commonwealth University, USA); Gang Zhou (William & Mary, USA); Leslie Cloud and Ingrid Pretzer-Aboff (Virginia Commonwealth University, USA) 2. VoiceLens: A Multi-view Multi-class Disease Classification Model through Daily-Life Speech Data Soumyadeep Bhattacharjee and Wenyao Xu (University at Buffalo, USA) 3. Machine Learning Prediction of TBI from Mobility, Gait and Balance Patterns Bhoomi Patel, Srinarayan Srikanthan, Florina Asani and Emmanuel Agu (Worcester Polytechnic Institute, USA) 4. Improve Image-based Skin Cancer Diagnosis with Generative Self-Supervised Learning Zhihang Ren, Yunhui Guo, Stella X. Yu, David Whitney (University of California, Berkeley, USA)
11:05-11:20	**Coffee Break**

11:20-12:40	**Conference Session 2**: *Novel Sensors and Technique for Smart Health* Session Chair: Peipei Zhou (University of Pittsburgh, peipei.zhou@pitt.edu) 1. mPose: Environment- and Subject-Agnostic 3D Skeleton Posture Reconstruction Leveraging a Single mmWave Device Cong Shi (Rutgers University, USA); Li Lu (Zhejiang University, China); Jian Liu (University of Tennessee, USA); Yan Wang (Temple University, USA); Yingying Chen (Rutgers University, USA); Jiadi Yu (Zhejiang University, China) 2. Air Pollution Exposure Monitoring Using Portable Low-cost Air Quality Sensors Pranvera Kortoci, Naser Hossein Motlagh, Martha A. Zaidan, Pak L. Fung, Samu Varjonen, and Andrew Rebeiro-Hargrave (University of Helsinki, Finland); Jarkko V. Niemi (Helsinki Region Environmental Services Authority,Finland); Petteri Nurmi, Tareq Hussein, Tuukka Petäjä, Markku Kulmala, and Sasu Tarkoma (University of Helsinki, Finland) 3. Radar-based Monitoring System for Medication Tampering using Data Augmentation and Multivariate Time Series Classification Elishiah Miller (University of Maryland Baltimore County, USA); Zane MacFarlane, Seth Martin (Johns Hopkins Medicine, USA); Nilanjan Banerjee, Ting Zhu (University of Maryland Baltimore County, USA) 4. Personalizing Over-the-Counter Hearing Aids using Pairwise Comparisons Dhruv Vyas, Ryan Brummet, Yumna Anwar, Justin Jensen, Erik Jorgensen, Yu-Hsiang Wu, Octav Chipara (University of Iowa, USA)
12:40-14:00	**Lunch**
14:00-15:30	**COVID-19 Panel** Moderator: Brian Thomas Garibaldi (Johns Hopkins) Panelists: 1. Matthew Robinson, School of Medicine, Johns Hopkins University 2. Beth Blauer, Johns Hopkins University 3. Laura Barnes, University of Virginia 4. Paul Kilgore, Wayne State University 5. Brian Thomas Garibaldi, Johns Hopkins Biocontainment Unit
15:30-15:45	**Coffee Break**

15:45-17:30	**Conference Session 3:** *Machine Learning for Smart Health* Session Chair: Shijia Pan (University of California Merced, span24@ucmerced.edu) 1. CamSense: A Camera-Based Contact-less Heart Activity Monitoring Zahid Hasan, Sreenivasan Ramasamy Ramamurthy, Nirmalya Roy (University of Maryland Baltimore County, USA) 2. STranGAN: Adversarially-Learnt Spatial Transformer for ScalableHuman Activity Recognition Abu Zaher Md Faridee, Avijoy Chakma, Nirmalya Roy (University of Maryland Baltimore County, USA); Archan Misra (Singapore Management University, Singapore) 3. OctopusNet: Machine Learning for Intelligent Management of Surgical Tools Mark Rodrigues, Michael Mayo, and Panos Patros (University of Waikato, New Zealand) 4. RT-ACL: Identification of High-Risk Youth Patients and their Most Significant Risk Factors to Reduce Anterior Cruciate Ligament Reinjury Risk Amanda Watson, Pengyuan Lu (University of Pennsylvania, USA); Elliot Greenberg, J. Todd R. Lawrence, Theodore J. Ganley (Children's Hospital of Philadelphia, USA); Insup Lee, James Weimer (University of Pennsylvania, USA) 5. Privacy Preserving Synthetic Respiratory Sounds for Class Incremental Learning Anja Shevchyk (Institute of Industrial Information Technology IIIT, Karlsruhe Institute of Technology, Germany); Rui Hu and Kevin Thandiackal (IBM Research Europe, Switzerland); Michael Heizmann (Institute of Industrial Information Technology IIIT, Karlsruhe Institute of Technology, Germany); Thomas Brunschwiler (IBM Research Europe, Switzerland)

Day 2 (Friday, December 17, 2021) - Conference

7:30-8:30	**Breakfast**
8:30-9:30	**Keynote Speech 2:** *Opportunities and Challenges of AI in Health related Applications* Keynote Speaker: Wei Ding (Professor, Computer Science, the University of Massachusetts Boston) Session Chair: Weisong Shi (Wayne State University)

9:30-9:45	**Coffee Break**
9:45-11:25	**Conference Session 4:** *Data Collection and Analysis* Session Chair: Amanda Watson (University of Pennsylvania, USA aawatson@seas.upenn.edu) 1. Detection and Analysis of Interrupted Behaviors by Public Policy Interventions during COVID-19 Guimin Dong, Lihua Cai, Shashwat Kumar, Debajyoti Datta, Laura E. Barnes, and Mehdi Boukhechba (University of Virginia) 2. Information Extraction from Patient Care Reports for Intelligent Emergency Medical Services Sion Kim, Weishi Guo, Ronald Williams, John A. Stankovic, and Homa Alemzadeh (University of Virginia, USA) 3. Before Coming Home: The Value of Interaction Studies with Rehabilitation Specialists Using Low-Fidelity, Physical Prototypes Prior to Inserting Novel Assistive Technologies into Seniors' Homes Johnell Brooks, and Casey Jenkins (Clemson University, USA); Deanna Kocher (Cornell University, USA); Zachary Hawks (Clemson University, USA); Yixiao Wang (Singapore University of Technology & Design, Singapore); Robert Shield (Cornell University, USA); Stephanie L. Tanner, Rebecca G. Snider (Prism Health, USA); Ian D. Walker (Clemson University, USA); Keith Evan Green (Cornell University, USA) 4. High-Confidence Data Programming for Evaluating Suppression of Physiological Alarms Sydney Pugh, Ivan Ruchkin (University of Pennsylvania, USA); Christopher Bonafide, Sara DeMauro (Children's Hospital of Philadelphia, USA); Oleg Sokolsky, Insup Lee, James Weimer (University of Pennsylvania, USA) 5. A Privacy-Preserving National Clinical Data Warehouse: Architecture and Analysis Md Raihan Mia, Abu Sayed Md. Latiful Hoque (Bangladesh University of Engineering and Technology, Bangladesh); Shahidul Islam Khan (International Islamic University, Chittagong, Pakistan); Sheikh Iqbal Ahamed (Marquette University, USA)
11:25-11:40	**Coffee Break**

11:40-12:40	**Short Paper Session 1**: *Applications* Session Chair:Fan Ye(Stony Brook University,fan.ye@stonybrook.edu) 1. VitalCore: Analytics and Support Dashboard for Medical Device Integration Hyonyoung Choi (University of Pennsylvania, USA); Amanda Lor, Mike Megonegal (Penn Medicine, USA); Xianyan Ji, Amanda Watson, James Weimer, and Insup Lee (University of Pennsylvania, USA) 2. EDA-based Data Stream Pattern Analysis and Peak Detection Algorithm for Substance Users Stefan A Bruendl, Hua Fang (University of Massachusetts Dartmouth & Medical School, USA); Honggang Wang (University of Massachusetts Dartmouth, USA); Edward W. Boyer (Harvard Medical School Boston, USA) 3. TeethVib: Monitoring Teeth Functional Occlusion Through Retainer Vibration Sensing Shijia Pan (University of California Merced, USA); Dong Yoon Lee (University of California Irvine, USA); Jun Ho Lee (Yosemite Dental, USA); VP Nguyen (University of Texas at Arlington, USA) 4. A Hybrid Query Expansion Framework for the Optimal Retrieval of the Biomedical Literature Sumbal Malik (United Arab Emirates University, United Arab Emirates); Umar Shoaib (University of Gujrat, Pakistan); Syed Ahmad Chan Bukhari (St. John's University, USA); Hesham El Sayed and Manzoor Ahmed Khan (United Arab Emirates University, United Arab Emirates)
12:40-14:00	**Lunch**
14:00-15:30	**NSF Panel:** Moderator: Wendy Nilsen (Program Director, NSF) Panelists: 1. Wendy Nilsen, Program Director, NSF 2. Wei Ding, Program Director, NSF; Professor of Computer Science, University of Massachusetts Boston 3. Dana Wolff-Hughes, Program Director, Behavioral and Social Sciences Research (OBSSR), NIH 4. Sylvia J. Spengler, Program Director, Division of Information Intelligent Systems, NSF 5. Georgia-Ann Klutke, Program Director, Division of Civil, Mechanical & Manufacturing Innovation, NSF
15:30-15:45	**Coffee Break**

15:45-17:15	**Short Paper Session 2:** *Predictive Models for Disease Detection II* Session Chair: Sarah Sun (University of Virginia, dzv7sg@virginia.edu) 1. Stress Prediction using micro-EMA and Machine Learning during COVID-19 Social Isolation Huining Li, Enhao Zheng, Zijian Zhong, Chenhan Xu, Nicole Roma, Steven Lamkin, Tania T Von Visger, Yu-Ping Chang, Wenyao Xu (SUNY University at Buffalo, USA) 2. mmEat: Millimeter Wave-Enabled Environment-invariant Eating Behavior Monitoring Yucheng Xie, Ruizhe Jiang, and Xiaonan Guo (IUPUI, USA); Yan Wang (Temple University, USA); Jerry Cheng (NYIT, USA); Yingying Chen (Rutgers University,USA) 3. A Progressive Prediction Model Towards Homebased Stroke Rehabilitation Programs Wei Bo, Wenyao Xu, Lora Cavuoto, Jeanne Langan, and Heamchand Subryan (University at Buffalo, USA); Sutanuka Bhattacharjya (Georgia State University, USA); Mingchun Huang (Duke Kunshan University, China) 4. Privacy Computing using Deep Compression Learning Techniques for Neural Decoding and Semantic Similarity Construction Huining Li (SUNY at Buffalo, USA); Huan Chen (Case Western Reserve University); Chenhan Xu, Anarghya Das (SUNY at Buffalo, USA); Xingyu Chen, Zhengxiong Li (CU Denver, USA); Jian Xiao (Chang'an University, China); Ming-chun Huang (Duke Kunshan University, China); Wenyao Xu (SUNY at Buffalo, USA) 5. Sensor-Based Human Activity Recognition for Elderly In-patients with a Luong Self-Attention Network Nithin G R (SSN College of Engineering, India); Mihika Chhabra (Bharati Vidyapeeth's College Of Engineering, India); Yujiao Hao (McMaster University, Canada); Boyu Wang (Western University, Canada); Rong Zheng (McMaster University, Canada) 6. Extracting Fractional Inspiratory Time from Electrocardiograms Maria Nyamukuru, Kofi Odame (Dartmouth College, USA)
17:15-17:30	**Coffee Break**
17:30-19:30	**Award Ceremony,Reception & Demo/Poster Session**

Day 3 (Saturday, December 18, 2021) - Workshop

7:30-8:15	**Breakfast**
8:15-8:30	**Opening: Greetings from the General Chair of the Workshop - Giancarlo Fortino (University of Calabria, Italy)**
8:30-9:00	**Workshop Keynote Speech:** *Leveraging mHealth Technology to Improve the Clinical Management of Patients with Parkinson's Disease* Paolo Bonato, Harvard Medical School, USA Session Chair: Giancarlo Fortino (University of Calabria, Italy)
9:00-9:15	**Coffee Break**
9:15-11:00	**Workshop Session 1:** *Machine and Deep Learning for e-Health* Session Chair: Giovanna Sannino, ICAR-CNR, Napoli, Italy 1. Explainable Deep Learning Models on the Diagnosis of Pneumonia Yuting Yang, Gang Mei and Francesco Piccialli 2. Deep Learning and its Benefits in Prediction of Patients Through Medical Images, Lida Kouhalvandi, Ladislau Matekovits and Ildiko Peter. 3. Diabetic Retinopathy Images Classification via Multiple Instance Learning Eugenio Vocaturo and Ester Zumpano 4. A Machine Learning Driven Pipeline for Automated Photoplethysmogram Signal Artifact Detection Luca Cerny Oliveira, Zhengfeng Lai, Wenbo Geng, Heather Siefkes and Chen-Nee Chuah Ollencio D'Souza, Subhas Mukhopadhyay and Fowzia Akhter 5. Key Generation of Biomedical Implanted Antennas Through Artificial Neural Networks Lida Kouhalvandi, Ladislau Matekovits and Ildiko Peter 6. Automatic Extraction of Interpretable Knowledge to Predict the Survival of Patients with Heart Failure Giovanna Sannino, Giuseppe De Pietro and Ivanoe De Falco
11:00-11:15	**Coffee Break**
11:15-12:15	**Workshop Session 2:** *Multi-Sensor based e-Health platforms* Session Chair: Emiliano Schena, Università Campus Bio-Medico di Roma, Italy 1. A Multisensory Platform for maximizing Collective Intelligence in the Operating Room Daniela Lo Presti, Raffaele Gravina, Carlo Massaroni, Domenico Formica, Emiliano Schena and Giancarlo Fortino 2. A dynamic power-aware strategy for Smart Health applications

	Deborah Falcone, Carmela Comito, Agostino Forestiero and Giuseppe Papuzzo 3. TeNDER: towards efficient Health Systems through e-Health platforms employing multimodal monitoring Vassilios Solachidis, Jaime Rodriguez Moreno, Gustavo Hernández-Peñaloza, Nicholas Vretos, Federico Alvarez and Petros Daras 4. Early Detection of Eating Disorders using Social Media Blanca Tébar and Anandha Gopalan
12:15-13:15	**Lunch**
13:15-14:15	**Panel: "Circuits of Care"** Moderator: Marco Manso (Edgeneering, Portugal) Panelists: 1. Marco Manso, Edgeneering, Portugal 2. Naonori Kodate, University College Dublin, Ireland 3. Emiliano Schena, Università Campus Bio-Medico di Roma,Italy
14:15-15:15	**Workshop Session 3:** *Digital Twins systems in e-Health* Session Chair: Agostino Forestiero, ICAR-CNR, Rende (CS), Italy 1. The Digital Twins in cancer: State-of-the-art and open research Kamran Gholizadeh Hamlabadi, Monireh Vahdati, Ali Mohammad Saghiri and Agostino Forestiero 2. Improving the Performance of Ambulance Emergency Service Using Smart Health Systems Mohammad Abdeen, Mohamed Hossam Ahmed, Hafez Seliem, Mustafa El-Nainay and Tarek Rahil Sheltami 3. Envisioning the Future: Activity-centred CONOPS in the Co-Design of a Sociotechnical System for Healthy Ageing Marco Manso, Barbara Guerra, Melanie Labor, Michael Cooke and Malcolm MacLachlan 4. A Framework for Project Risk Assessment in Telehealth Emilio Sulis, Alex Cordero, Simone Donetti, Paolo Ferrero and Andrea Violato
15:15	**Closing:** **Farewell from the General Chair of the Workshop - Giancarlo Fortino (University of Calabria, Italy)**