

2023 CHASE Program (tentative & could be modified later)

June 21 (Day 1)

8:00 – 8:45 Continental Breakfast

8:45-9:00 Open remarks

9:00-11 NSF-NIH Aspiring Meeting

11:00-11:20 Coffee Break

11:20 – 12:30 Plenary Session

12:30 – 2:00 Lunch

1:30-2:30 Keynote (Wendy Nilsen)

2:45-3:30 Demo/poster lighting talks

3:30 – 4:00 Coffee Break

4-5:20 Session 1: **Disease Detection and Diagnosis (20 min each)**

1. **Automatic Disease Detection in Endoscopy with Light Weight Transformer** (Zhang Zhang: Department of Computer Science, University of Massachusetts Lowell, Qilei Chen: Department of Computer Science, University of Massachusetts Lowell, Shuijiao Chen: Department of Gastroenterology, Xiangya Hospital of Central South University, Hunan, China, Xiaowei Liu: Department of Gastroenterology, Xiangya Hospital of Central South University, Hunan, China, Yu Cao: Department of Computer Science, University of Massachusetts Lowell, Benyuan Liu: Department of Computer Science, University of Massachusetts Lowell, Honggang Zhang: University of Massachusetts Boston)
2. **Deep Learning for Gastric Location Classification: An Analysis of Location Boundaries and Improvements through Attention and Contrastive Learning** (Chenxi Zhang: Department of Computer Science, University of Massachusetts Lowell, Alexander Ding: Department of Computer Science, Brown University, Zhehao Fu: Department of Computer Science, University of Wisconsin-Madison, Jing Ni: Department of Computer Science, University of Massachusetts Lowell, Zinan Xiong: Department of Computer Science, University of Massachusetts Lowell, Qilei Chen: Department of Computer Science, University of Massachusetts Lowell, Yu Cao: Department of Computer Science, University of Massachusetts Lowell, BENYUAN LIU: Department of Computer Science, University of Massachusetts Lowell, Chenshui Jiao: Xiangya Hospital, Central South University, Xiaowei Liu: Xiangya Hospital, Central South University)
3. **Interpreting High Order Epistasis Using Sparse Transformers** (Miguel Graça: INESC-ID, Aleksandar Ilic: INESC-ID & Instituto Superior Técnico, Leonel Sousa: INESC-ID & Instituto Superior Técnico, Sergio Santander-Jiménez: University of Extremadura (UNEX), Cáceres, Spain, Diogo Marques: INESC-ID & Instituto Superior Técnico)
4. **Parkinson's Disease Action Tremor Detection with Supervised-Learning Models** (Minglong Sun: William & Mary, Woosub Jung: William & Mary, Kenneth Koltermann: William & Mary, Gang Zhou: William & Mary, Amanda Watson: University of Pennsylvania, Ginamari Blackwell: Virginia Commonwealth University, Noah Helm: Virginia Commonwealth University, Leslie Cloud: Virginia Commonwealth University, Ingrid Pretzer-Aboff: Virginia Commonwealth University)

June 22 (Day 2)

8:00 – 8:45 Continental Breakfast

8:45-9:45 keynote (Dong Xu)

10:00-11:00 Session 2: Disease Treatment and Intervention (20 min each)

1. **Social Visual Behavior Analytics for Autism Therapy of Children Based on Automated Mutual Gaze Detection** (Zhang Guo: University of Delaware, Vuthea Chheang: University of Delaware, Jicheng Li: University of Delaware, Kenneth E. Barner: University of Delaware, Anjana Bhat: University of Delaware, Roghayeh Leila Barmaki: University of Delaware)
2. **FoG-Finder: Real-time Freezing of Gait Detection and Treatment** (Kenneth Koltermann: William & Mary, Woosub Jung: William & Mary, Gina Blackwell: Virginia Commonwealth University, Abbott Pinney: William & Mary, Matthew Chen: William & Mary, Leslie Cloud: Virginia Commonwealth University, Ingrid Pretzer-Aboff: Virginia Commonwealth University, Gang Zhou: William & Mary)
3. **Towards Dynamic Action Planning with User Preferences in Automated Health Coaching** (Ajith Vemuri: University of Delaware, Megan Heintzelman: University of Delaware, Alex Waad: University of Delaware, Matthew Mauriello: University of Delaware, Keith Decker: University of Delaware, Gregory Dominick: University of Delaware)

11:00-11:20 Coffee Break

11:20 – 12:30 Plenary Session

12:30 – 2:00 Lunch

2:00-3:20 – Session 3: AI and Signal Processing for Health - I (20 min each)

1. **Efficient and Direct Inference of Heart Rate Variability using Both Signal Processing and Machine Learning** (Yuntong Zhang: University of Texas at San Antonio, Jingye Xu: University of Texas at San Antonio, Mimi Xie: University of Texas at San Antonio, Dakai Zhu: University of Texas at San Antonio, Houbing Song: University Of Maryland Baltimore County, Wei Wang: University of Texas at San Antonio)
2. **EMS-BERT: A Pre-Trained Language Representation Model for the Emergency Medical Services (EMS) Domain** (M Arif Rahman: University of Virginia, Sarah Masud Preum: Dartmouth College, Ronald D. Williams: University of Virginia, Homa Alemzadeh: University of Virginia, John Stankovic: University of Virginia)
3. **Active Reinforcement Learning for Personalized Stress Monitoring in Everyday Settings** (Ali Tazarv: University of California, Irvine, Sina Labbaf: University of California, Irvine, Amir Rahmani: University of California, Irvine, Nikil Dutt: University of California, Irvine, Marco Levorato: University of California, Irvine)
4. **TransNet: Parallel Encoder Architecture for Human Pose Estimation** (Chenxi Wang: University of Massachusetts Lowell, Zinan Xiong: University of Massachusetts Lowell, Ying Li: Guide Infrared, Yan Luo: University of Massachusetts Lowell, Yu Cao: University of Massachusetts Lowell)

3:30 – 4:00 Coffee Break

4-5:40 Session 4: Sensing for Smart Health (20 min each)

1. **DOVE: Shoulder-based Opioid Overdose Detection and Reversal Device** (Anush Lingamoorthy: Drexel University, Amanda Watson: University of Pennsylvania, David Gordon: Thomas Jefferson University, Ayan Mandal: University of Pennsylvania, Corey Henderson: University of Pennsylvania, Xiaonan Ma: University of Pennsylvania, James Weimer: Vanderbilt University, Jacob S Brenner: University of Pennsylvania, Nagarajan Kandasamy: Drexel University)
2. **Detecting Eating, and Social Presence with All Day Wearable RGB-T** (Soroush Shahi: Northwestern University, Sougata Sen: BITS Pilani, KK Birla Goa campus, Mahdi Pedram: Northwestern University, Rawan Alharbi: Northwestern University, Yang Gao: Northwestern University, Aggelos K Katsaggelos: Northwestern University, Josiah Hester: Georgia Institute of Technology, Nabil Alshurafa: Northwestern University)
3. **Virtual Therapy Exergame for Upper Extremity Rehabilitation Using Smart Wearable Sensors** (Lauren Baron: University of Delaware, Vuthea Chheang: University of Delaware, Amit Chaudhari: University of Delaware, Arooj Liaqat: University of Delaware, Aishwarya Chandrasekaran: University of Delaware, Yufan Wang: University of Delaware, Joshua Cashaback: University of Delaware, ;Erik Thostenson: University of Delaware, Roghayeh Leila Barmaki: University of Delaware)
4. **Respiratory Biofeedback Using Acoustic Sensing with Smartphones** (Azhar Chara: California State University, Sacramento, Tianya Zhao: Florida International University, Xuyu Wang: Florida International University, Shiwen Mao: Auburn University)
5. **Exploring Earables to Monitor Temporal Lack of Focus during Online Meetings to Identify Onset of Neurological Disorders** (Garvit Chugh: Indian Institute of Technology Jodhpur, Suchetana Chakraborty: Indian Institute of Technology Jodhpur, Ravi Bhandari: Indian Institute of Technology, Jodhpur, Sandip Chakraborty: Indian Institute of Technology, Kharagpur)

5:45-7:45: Reception + Demo/poster sessions + Best Paper Award

June 23 (Day 3)

8:00 – 8:45 Continental Breakfast

8:45-9:45 – keynote (Chenyang Lu)

10-11 Session 5: Public Health (20 min each)

1. **Using Geographic Location-Based Public Health Features in Survival Analysis** (Navid Seidi: Missouri University of Science and Technology, Ardhendu Tripathy: Missouri University of Science and Technology, Sajal K. Das: Missouri University of Science and Technology)
2. **Predicting Unreliable Response Patterns in Smartphone Health Surveys: A Case Study with the Mood Survey** (Jaea Cho: Purdue University, Kexin Meng: Purdue University, Sudip Vhaduri: Purdue University)
3. **Examining a Social-Based System with Personalized Recommendations to Promote Mental Health for College Students** (Farhanuddin Fazaluddin Kazi: University of Minnesota Duluth, Jomara Sandbulte: University of Minnesota Duluth)

11:00-11:20 Coffee Break

11:20 – 12:30 Plenary Session

12:30 – 2:00 Lunch

2:00-3:20 Session 6: AI and Signal Processing for Health – II (20 min each)

1. **SimPPG: Self-Supervised Photoplethysmography-based Heart-rate Estimation via Similarity-Enhanced Instance Discrimination** (Soumyadeep Bhattacharjee: Williamsville East High School, Huining Li: State University of New York at Buffalo, Jun Xia: State University of New York at Buffalo, Wenyao Xu: State University of New York at Buffalo)
2. **An Energy-Efficient Semi-Supervised Approach for On-Device Photoplethysmogram Signal Quality Assessment** (Mohammad Feli: University of Turku, Iman Azimi: University of California, Irvine, Arman Anzanpour: University of Turku, Amir M. Rahmani: University of California, Irvine, Pasi Iiljeberg: University of Turku)
3. **Examining the Construct of HPV Vaccine Hesitancy and its Determinants using Randomized Neural Networks** (Xishi Zhu: University of Alabama, Hee Yun Lee: University of Alabama, Jiaqi Gong: University of Alabama)
4. **RT-TRAQ: An Algorithm for Real-time Tracking of Faint Quasi-Periodic Signals in Noisy Time Series** (Rishad Joarder: University of California at Davis, Begum Kasap: University of California at Davis, Soheil Ghiasi: University of California at Davis)

3:30 – 4:00 Coffee Break

4:00-6:10 – Session 7: 13 short papers (10 min each)

1. **Short: Real-Time Bladder Monitoring by Bio-impedance Analysis to Aid Urinary Incontinence** (Ruoyu Zhang: University of California Davis, Ruijie Fang: University of California Davis, Zhichao Zhang: University of California Davis, Elahe Hosseini: University of California Davis, Mahdi Orooji: University of California Davis, Houman Homayoun: University of California Davis, Gozde Goncu-Berk: University of California Davis)
2. **Short: Prediction of Fetal Blood Oxygen Content in Response to Partial Occlusion of Maternal Aorta** (Weitai Qian: University of California, Davis, Hongtao Zhong: University of California, Davis, Soheil Ghiasi: University of California, Davis)
3. **Short: Racial Disparities in Pulse Oximetry Cannot Be Fixed With Race-Based Correction** (Neal Patwari: Washington University in St. Louis, Di Huang: Washington University in St. Louis, Francesca Bonetta-Misteli: Washington University in St. Louis)
4. **Short: Towards Personalized Rehabilitation Employing Classification, Localization, and Visualization of Brain-Arm Movement Relationships** (Soroush Korivand: Department of Mechanical Engineering, The University of Alabama, Xishi Zhu: Department of Computer Science, The University of Alabama, Nader Jalili: Department of Mechanical Engineering, The University of Alabama, Kyung Koh: Departments of Physical Therapy & Rehabilitation Science, University of Maryland, Li-Qun Zhang: Departments of Physical Therapy & Rehabilitation Science/Orthopaedics/Bioengineering, University of Maryland, Jiaqi Gong: Department of Computer Science, The University of Alabama)
5. **Short: Integrated Sensing Platform for Detecting Social Isolation and Loneliness In the Elderly Community** (Xiayan Ji: University of Pennsylvania, Xian Li: University of Pennsylvania, Ahhyun Yuh: University of Pennsylvania, Claire Kendell: University of Pennsylvania, Amanda Watson: University of Pennsylvania, James Weimer: University of Pennsylvania, Hajime Nagahara: Osaka University, Teruo Higashino: Osaka University, Teruhiro Mizumoto: Osaka

- University, Viktor Erdélyi: Osaka University, George Demiris: University of Pennsylvania, Oleg Sokolsky: University of Pennsylvania, Insup Lee: University of Pennsylvania)
6. **Short: Liquid Thickness Sensing with Backscattered Signals for Dysphagia** (Wei Sun: Ohio State University, Ishaan Chansarkar: Cornell University, Kannan Srinivasan: Ohio State University)
 7. **Short: Basal-Adjust: Trend Prediction Alerts and Adjusted Basal Rates for Hyperglycemia Prevention** (Chloe Smith: University of Virginia, Maxfield Kouzel: University of Virginia, Xugui Zhou: University of Virginia, Homa Alemzadeh: University of Virginia)
 8. **Short: A Data-Driven Respirator Fit Test Model via Human Speech Signal** (Jinmiao Chen: University of Oklahoma, Shangqing Zhao: University of Oklahoma, Zhaohe (John) Zhang: University of Oklahoma, Song Fang: University of Oklahoma, Thomas M. Peters: University of Iowa, Evan L. Floyd: The University of Oklahoma Health Sciences Center, Changjie Cai: The University of Oklahoma Health Sciences Center)
 9. **Short: RF-Q: Unsupervised Signal Quality Assessment for Robust RF-based Respiration Monitoring** (Zongxing Xie: Stony Brook University, Ava Nederlander: Stony Brook University, Isac Park: Stony Brook University, Fan Ye: Stony Brook University)
 10. **Short: Precision Polysubstance Use Episode Detection in Wearable Biosensor Data Streams** (Joshua Rumbut: University of Massachusetts Dartmouth; University of Massachusetts Chan Medical School, Hua Fang: University of Massachusetts Dartmouth; University of Massachusetts Chan Medical School, Edward W Boyer: Brigham and Women's Hospital, Honggang Wang: University of Massachusetts Dartmouth)
 11. **Short: Causal Structural Learning of Conversational Engagement for Socially Isolated Older Adults** (Fengpei Yuan: University of Tennessee, Knoxville, Wenjun Zhou: University of Tennessee, Knoxville, Hiroko H. Dodge: Harvard Medical School, Xiaopeng Zhao: University of Tennessee, Knoxville)
 12. **Short: VANet: An Intuitive Light-Weight Deep Learning Solution Towards Ventricular Arrhythmia Detection** (Tianyu Chen: University at Buffalo, SUNY, Alexander Gherardi: University at Buffalo, SUNY, Anarghya Das: SUNY Buffalo, Huining Li: SUNY University at Buffalo, Chenhan Xu: University at Buffalo, SUNY, Wen Yao Xu: SUNY Buffalo)
 13. **Short: Deep Learning Approach to Skeletal Performance Evaluation of Physical Therapy Exercises** (Bhanu Garg: University of California San Diego, Sujit Dey: University of California San Diego, Pamela Cosman: University of California San Diego, Alexander Postlmayr: University of California San Diego)