BHANU TEJA GULLAPALLI

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CURRENT POSITION

Postdoctoral Research Fellow, Harvard University   Jul '24 - Now
Center for Research on Computation and Society
Mentor *: Prof. Susan Murphy*
Working on designing Reinforcement Learning (RL) algorithms for mobile health clinical trials.

EDUCATION

University of California San Diego   Sept '18 - Jun'24
PhD in Data Science. Transferred from *UMass Amherst, Sept'22.*
Advised by *Prof. Tauhidur Rahman*
University of Massachusetts, Amherst   Feb '17 - Sept '18
MS in Computer Science
Indian Institute of Technology, Guwahati   July '11 - May '15
Bachelor of Technology in Computer Science

PAPERS

- Opioid Misuse Detection with Temporal Fusion-Based Deep Learning for Multivariate Cognitive and Psychophysiological Data
  Gullapalli, B.T., *Luo, Y., Rahman, T., and Garland, E.L*
  (Awaiting Decision, Addiction)

- A Framework for Extracting Heart Rate Variability Features from Earbud-PPG for Stress Detection
  Gullapalli, B.T., *Nathan.V., Rahman, M.D., Kaung, J., and Gao,J*
  EMBC'24

- Pharmacokinetics-Informed Neural Network for Predicting Opioid Administration Moments with Wearable Sensors
  Gullapalli, B.T., *Garland, E.L., Carreiro, S., Chapman, B. P., and Rahman, T*
  IAAI 2024

- Zoom-Based Mindfulness-Oriented Recovery Enhancement Plus Just-in-Time Mindfulness Practice Triggered by Wearable Sensors for Opioid Craving and Chronic Pain
  Garland, E.L., ***Gullapalli, B.T.***, *Prince, K. C., Hanley, Adam W ., Sanyer, M., Tuomenoksa, M., and Rahman, T*
  Mindfulness 2023

- Impact of individual and treatment characteristics on wearable sensor-based digital biomarkers of opioid use
  Chapman, B. P., ***Gullapalli, B.T.***, *Rahman, T., Smelson, D., Boyer, E.W., and Carreiro, S*
  npj Digital Medicine 2022

- OpiTrack: A Wearable-based Clinical Opioid Use Tracker with Temporal Convolutional Attention Networks
  Gullapalli, B.T., *Carreiro, S., Chapman, B. P., Ganesan, D., Sjoquist, J., and Rahman, T*
  UBICOMP 2021

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[1]Use URL bhanutejagullapalli.github.io in case hyperlinks don't work

- Joint prediction of cocaine craving and euphoria using structured prediction energy networks
  Gullapalli, B.T., *Angarita, G.A., Ganesan, D., and Rahman, T*
  MOBISYS 2021 WORKSHOP

- On-body Sensing of Cocaine Craving, Euphoria and Drug-Seeking Behavior Using Cardiac and Respiratory Signals
  Gullapalli, B.T., *Natarajan, A., Angarita, G.A., Malison, R.T., Ganesan, D., and Rahman, T*
  UBICOMP 2019

- A new hierarchical clustering algorithm to identify non-overlapping like-minded communities
  Deepak, T.S., Adhya, H., Kejriwal, S., ***Gullapalli, B.T.*** *and Shannigrahi, S*
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INDUSTRY EXPERIENCE

Optum AI labs   Jun '23 -Sept '23
Built continuous and passive estimation of risk in Type 2 diabetes mellitus (T2DM) subjects using Continuous Glucose Monitoring data. The estimation is then used in a sampling-based algorithm to design and deliver mobile interventions.

Samsung Research America, Digital Health Lab   May '22 - Sep '22
Designed a framework to extract heart-rate variability features from Samsung's digital health devices. Detecting stress using this proposed framework on human subjects with reference sensors undergoing validated stressor tasks.

Samsung R&D Institute, Bangalore, India   Jul '15 - Dec '16
Worked in the Video Editor team of Samsung Camera. Primarily worked on Samsungs Video Editor (Pro/Lite), highlight player, Slow Motion. Developed and implemented theme mode in Video Editor Pro which assists the user in creating stories on Samsung Galaxy S8.   Bangalore, India

Samsung R&D Institute, Bangalore, India   May '14 - Aug '14
Developed a simulation of OLSR (Optimized Link State Routing) Protocol for Tizen OS. Added APIs which extended the functionalities from the Android.   Bangalore, India

COURSEWORK

Key Courses: Advanced Natural Language Processing, Advanced Machine Learning, Machine Learning, Machine Learning Theory, Probabilistic Graphical Models, Artificial Intelligence, Advanced Algorithms, Advanced Information Assurance, Research Methods in Empirical Computer Science, Data Science, Ethics, & Society.

TECHNOLOGY & SKILLS

Languages: Python, Java, Android, C/C++, HTML
Tools & Frameworks: Deep learning with Pytorch, Python Machine learning stack (Numpy/scipy, Scikit-Learn, Statsmodels), Git, LaTeX

ACHIEVEMENTS

- My doctoral research received the Bouchet Scholars honorable mention award in 2024.
- My research is supported by Optum AI grant "Predictive Analytics for Opioid Use Disorder Risk with Multimodal Wearable Signals".
- My work contributed to my advisor's Google Research Scholar Program award, "Personalized AI/ML Framework for Modeling Opioid Addiction with Wearable and Smartphone Sensor Data"
- Press Coverage of our work to fight opioid epidemic with wearable signals.

- Accepted to Yale's Innovation to Impact program
- My work on opioids has contributed to National science foundation (NSF) smart and connected health grant ($1.1 Million) in 2021 titled *"Collaborative Research: SCH: Psychophysiological sensing to enhance mindfulness-based interventions for self-regulation of opioid cravings"*
- Won the first prize at Samsung R&D Institute Bangalore tech-fair for developing a location-based filter for Samsung video editor.
- Received Spot Award in Samsung R&D Institute Bangalore for providing innovative solutions and exceptional coding skills.
- Listed among top 0.3% students of 0.5 million appearing in Joint Entrance Exam, IIT-JEE 2011
- Secured 961 rank in All India Engineering Entrance Exam (AIEEE) 2011 taken by 1.2 million people