BHANU TEJA GULLAPALLI

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EDUCATION

University of Massachusetts, Amherst Sept '18 - Present
PhD in Computer Science (advised by *Prof. Tauhidur Rahman*) CGPA-3.95/4.0

University of Massachusetts, Amherst Feb '17 - Sept '18
MS in Computer Science CGPA-4.0/4.0

Indian Institute of Technology, Guwahati July '11 - May '15
Bachelor of Technology in Computer Science CGPA-7.81/10.0

RESEARCH INTERESTS

- Wearable Health Sensing
- Machine Learning
- Mobile Health Systems

PAPERS

- OpiTrack: A Wearable-based Clinical Opioid Use Tracker with Temporal Convolutional Attention Networks
  Gullapalli, B.T.*, Stephanie, C., Brittany, P.C., Ganesan, D., Jan, S. and Rahman, T*
  UBICOMP 2021

- Joint prediction of cocaine craving and euphoria using structured prediction energy networks
  Gullapalli, B.T.*, A., Angarita, R.T., 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.*** *and Shannigrahi, S.,*
  HT 16

KEY RESEARCH PROJECTS

Effectiveness of Mindfulness-based therapy for opioids using wrist watch Oct '21 - Present
PPredicting the effectiveness of mindfulness-based therapy for opioids using heart-rate-variability captured from a wrist-worn sensor.

Self-supervised modeling for opioid administration May '21 - Present
Unlabeled sensor data is initially used to train an upstream Channel-Temporal Attention TCN model using an artificial task that is motivated by the pharmacokinetics of opioids. This upstream model is used for downstream tasks of detecting opioid administrations IV or orally in the lab and the outpatient setting.

Joint prediction of cocaine craving and euphoria using structured prediction energy networks Mar '21 - Apr '21

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

Joint modeling of cocaine craving and euphoria while using the inherent correlation between these labels with a structured prediction energy network.

Opioid administration using wearable biosensors Jul '19 - Feb '21
Detecting opioid administration using physiological signals obtained from wristband of the subjects admitted to hospital for acute pain using a Channel-Temporal Attention TCN.

Sensing cocaine craving, euphoria and drug-seeking behavior using cardiac and respiratory signals Apr '18 - Feb '19
Built a system that can understand and predict key variables of the addiction loop using ECG and the respiratory signal obtained from a wearable chest band.

Drug Target prediction using Deep Representation Learning Jan '18 - Apr '18
Using graph convolution and attention mechanism, built an interpretable system which can identify proteins affected by a drug.

Tree-Structured Detector Cascade May '17 - Aug '17
Developed a novel way to grow and find the optimal configuration of a tree-structured cascade and tested it to smoking detection.

INDUSTRY EXPERIENCE

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

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

- 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"*
- Received Spot Award in Samsung R&D Institute Bangalore for providing good solutions and coding skills
- Won the first prize at Samsung R&D Institute Bangalore tech-fair for developing a location-based filter for Samsung video editor
- 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