Nauman Ahad

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https://nahad3.github.io

OVERVIEW

PhD. student with extensive experience in using machine learning to help solve real world problems. Prior projects have provided me the opportunity to work with real world datasets that arise in computer vision, time series and recommender system problems. My research concentration is in time series, particularly in problems that are related to anomaly and change detection. I am particularly interested in opportunities that involve applying and devising machine learning tools for real-world noisy data.

EDUCATION

Georgia Institute of Technology   Aug 2018 - May 2023
PhD. in Electrical and Computer Engineering
Specialization in Signal Processing and Machine Learning

Georgia Institute of Technology   Aug 2016 - May 2018
Masters in Electrical and Computer Engineering

National University of Sciences and Technology   Sep 2010 - Aug 2014
Bachelors in Electrical Engineering

WORK EXPERIENCE

Georgia Institute of Technology

Graduate Research Assistant   Aug 2018 - Present
- Developed robust change detection methods for real-world noisy settings
- Used change points for sequence classification for time series/ sensor data.
- Developed an in-seat activity tracker for paraplegic wheel chair users that is deployed in clinical trials

NEC Research Labs America

Research Intern   May 2021 - Aug 2021
- Proposed new methods for data efficient ordinal classification using self-supervised learning. These methods reduce training time by 60 % for certain deep learning systems
- Explored how soft-labels are better suited for classifying noisy ordinal data
- Worked on Signal to Noise ratio classification in real world optical network systems
- This work resulted in a Patent application

xFlow Research

Software Engineer   Sep 2014 − June 2016
- Delivered an automated hardware benchmarking suite for quantifying NFV infrastructure performance as part of the OPNFV project (open source project under Linux foundation)

OTHER COURSE PROJECTS

- Using BCG signals to identify heart compensated states using Probabilistic Graphical Models
- Change detection through Online Convex Programming
- Domain Adaptation through causal black-box classifier explainers
- Network community detection using Non-negative Matrix Factorization
- Collaborative Filtering for Recommender Systems using categorical Matrix Completion

SKILLS

Programming: Python, C/C++, MATLAB
Tools/Frameworks: Pytorch, JAX, TensorFlow, Keras, Bash, Ansible, Sci-kit learn, Git, Jenkins, Linux, LaTeX

PUBLICATIONS

– N. Ahad, E. Dyer, K. Hengen, Y. Xie, M. Davenport, "Learning Sinkhorn divergences for supervised change point detection", *Preprint* arXiv:2202.04000 , 2022.

– N.Ahad, S. Sonenbum, M. Davenport, S. Sprigle, " Validating a Wheelchair In-Seat Activity Tracker", *Assistive Technology*, 2021.

– N.Ahad, Y. Xie, M. Davenport, " Data Adaptive Symmetrical CUSUM ", under review in *Sequential Analysis*

– C. Uzray, N.Ahad, M. Abazou, E. Dyer, "Detecting change points in neural population activity with contrastive metric learning", *Conf. Comp. Neuro Scie. (CCN)* , 2022

– N. Ahad, M. Davenport, " Semi-supervised Sequence Classification through Change Point Detection ", *AAAI*, 2021

– F. Zhu,A. Sedler, H. Grier, N. Ahad, M. Davenport, M. Kaufman,A. Giovannucci, C.Pandarinath " Deep inference of latent dynamics with spatio-temporal super-resolution using selective backpropagation through time ", *NeurIPS*, 2021

– A.D. McRae, A. Xu, J. Jin, N.Nadagouda, N. Ahad, P. Guan, S. Karnik, M. Davenport" Delta distancing: A Lifting Approach to localizing items from user comparisons", *ICASSP*, 2022

– N. Ahad, J. Qadir, and N. Ahsan, " Neural networks in wireless networks: Techniques, applications and guidelines ", *Journal of network and computer applications*, 2016

– WiSAT: An activity tracker for wheelchair users:
https://apps.apple.com/us/app/wisat/id1481120620