Farhan Asif Chowdhury

fasifchowdhury@unm.edu • +1 (505) 219-8786 • https://www.cs.unm.edu/∼aumyfarhan1/ • https://github.com/aumyfarhan/

EDUCATION

The University of New Mexico (UNM), Albuquerque, USA
- Ph.D. in Computer Science   May 2022 (Expected)
  - Research areas: Temporal Data and Social Media mining, Event and Anomaly detection.
  - Adviser: Dr. Abdullah Mueen
- M.S. in Computer Science   Dec 2019

Bangladesh University of Engineering & Technology (BUET), Dhaka, Bangladesh
- B.Sc. in Electrical & Electronic Engineering   Mar 2016
  - Thesis: Automatic Segmentation of Breast Lesions in B-Mode Ultrasound Image.
  - Adviser: Dr. Md. Kamrul Hasan

PUBLICATIONS

[1] **Farhan Asif Chowdhury**, M Ashraf Siddiquee, Glenn Eli Baker, and Abdullah Mueen. **FASER: Seismic Phase Identifier for Automated Monitoring**. In *Proceedings of the 27th ACM SIGKDD International Conf on Knowledge Discovery & Data Mining (KDD)*, 2021

[2] Vinicius M. A. Souza, A. R Parmezan, **Farhan Asif Chowdhury**, and Abdullah Mueen. **Efficient unsupervised drift detector for fast and high-dimensional data streams**. In *Knowledge and Information Systems, 63(6), 1497-1527 (KAIS)*, 2021

[3] **Farhan Asif Chowdhury**, Yozen Liu, Koustuv Saha, Nicholas Vincent, Leonardo Neves, Neil Shah, and Maarten W. Bos. **Modeling Cyclic and Ephemeral User Behavior on Social Platforms**. In *Proceedings of the 15th International AAAI Conference on Web and Social Media (ICWSM)*, 2021

[4] Koustuv Saha, Yozen Liu, Nicholas Vincent, **Farhan Asif Chowdhury**, Leonardo Neves, Neil Shah, and Maarten W. Bos. **AdverTiming Matters: Examining User Ad Consumption for Effective Ad Allocations on Social Media**. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI)*, 2021

[5] Vinicius M. A. Souza, **Farhan Asif Chowdhury**, and Abdullah Mueen. **Unsupervised Drift Detection on High-speed Data Streams**. In *2020 IEEE International Conference on Big Data (IEEE BigData)*, 2020

[6] **Farhan Asif Chowdhury**, Lawrence Allen, Mohammad Yousuf, and Abdullah Mueen. **On Twitter Purge: A Retrospective Analysis of Suspended Users**. In *Companion Proceedings of the Web Conference (WWW)*, 2020

[7] **Farhan Asif Chowdhury**, Satomi Suzuki, and Abdullah Mueen. **Structured Noise Detection: Application on Well Test Pressure Derivative Data**. In *Proceedings of the 25th ACM SIGKDD International Conf on Knowledge Discovery & Data Mining (KDD)*, 2019

[8] **Farhan Asif Chowdhury**, Rashidul Hasan, Dheeman Saha, Koustuv Saha, and Abdullah Mueen. **Examining Factors Associated with Twitter Account Suspension Following the 2020 US Presidential Election**. *Submitted to the IEEE ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, 2021

[9] Rashidul Hasan, Dheeman Saha, **Farhan Asif Chowdhury**, and Abdullah Mueen. **DiffuScope: Inferring Post-specific Diffusion Network**. *Submitted to the IEEE ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, 2021

[10] Nicholas Vincent, Yozen Liu, Koustuv Saha, **Farhan Asif Chowdhury**, Leonardo Neves, Neil Shah, and Maarten W. Bos. **Predicting User States with Anonymous Activity Streams**. *To be submitted to the 2022 CHI Conference on Human Factors in Computing Systems (CHI)*, 2022

PROFESSIONAL EXPERIENCE

Graduate Research Assistant, Dept of Computer Science, UNM   Jan 2018 – Present

- **Characterization and Detection of Malicious User Behavior on Social Media**
  - Developed a Twitter data crawler; crawled 560M Twitter user info & 1B Tweets and analyzed (tweet content, user info & activity pattern) to characterize and model malicious vs. non-malicious users.
  - Working on misinformation and inorganic content detection on social media based on the diffusion dynamics.
  - Developing methods to extract efficient and distinctive feature embeddings to simplify and summarize large-scale temporal user-activity graphs.
- **A Real-time Twitter Analytics Dashboard (Designed & Developed)**
  - Functionality: Hashtag & User Activity Tracking, Identifying frequent Word/Hashtag/URL & Influential users, Tweet filtering & classification (i.e. sentiment, intent, spam), Info-graphic visualization.
- **Seismic Phase Classification for Automated Monitoring**
  - Developed a deep-learning model for fine-grained phase classification from single-station seismic time-series. The model utilizes a Convolutional Neural Network and Long-Short Term Memory Network in combination to exploit both short- and long-term temporal patterns in seismic data to improve classification accuracy.
- **Event and Anomaly Detection in Pressure Sensor Data (Sponsored by ExxonMobil)**
  - Developed a semi-supervised algorithm using Singular Spectrum Analysis for Structured Noise detection in Oil/Gas well pressure data to automate Pressure Transient Analysis; created a user interface.

Research Intern, NEC Labs America., Princeton, NJ   Jan 2021 – Aug 2021

Mentors: Biplob Debnath, Oliver Po, Srimat Chakradhar, Asim Kadav, Farley Lai

- **Few-shot Video Action Recognition System.**
  - Worked on developing a few-shot video action recognition system that leverages temporal information to improve recognition performance for longer, sequential activity types.

Research Intern, Snap Inc., Los Angeles, CA   May 2020 – Aug 2020

Mentors: Maarten W. Bos, Yozen Liu, Neil Shah, Leonardo Neves

- **Characterizing and Modeling Temporal Dynamics of User Behavior on Social Platforms.**
  - Worked in the Computational Social Science research team to study and understand how user behavior on social platforms is driven by regularities and momentary cognition & feelings. The work is aimed towards better and privacy-preserving modeling of user behavior for dynamic and personalized content recommendation.
  - Analyzed large-scale Snapchat user activity data to explore and uncover temporal patterns in user behavior, both at the collective and individual level.
  - Developed a privacy-preserving and interpretable user behavior model using recurrent neural networks and adaptive attention mechanism that exploits the regularities in individual user-behavior for improved activity prediction.

Graduate Research Assistant, Dept of Mechanical Engineering, UNM   Sep 2017 – Apr 2018

- **Power Distribution Infrastructure Detection from Street-view Image using Deep Learning**
  - Developed an API to extract 360 degrees Google street-view image using Google Maps API.
  - Applied deep learning methods to detect utility pole from low-resolution images.

Lecturer, Dept of Computer Science, Daffodil Int. University, Bangladesh   Sep 2016 – Aug 2017

- Conducted theory and lab courses, and advised projects on Digital Logic Design.

Undergrad Research Assistant, DSP Research Lab, BUET   Mar 2015 – Jun 2016

- Developed an algorithm for automated Breast Lesions segmentation from B-mode Ultrasound image.

SELECTED PROJECTS

- Traffic sign detector and classifier for street view image using **Convolutional Neural Network (CNN), Single-Shot Detector, and Region-CNN** algorithms (implemented in **Keras and TensorFlow)**; performed a comparative analysis of their accuracy.
- **Multi-class, Multi-label classifier** of Human Protein Atlas image using **ResNet-50 CNN** in **Kaggle**.
- Document classifier using **Logistic Regression** and **Naive Bayes** classifier; used **Mutual Information** for important **feature selection**.
- Music genre classifier using **Support Vector Machine** and **Neural Network**; performed **feature engineering** to improve accuracy.
- **Imperative language compiler**; functionalities: abstract syntax tree and control flow graph generation, live-ness analysis and dead-code elimination, assembly code generation.
- Supersense Tagger: A contextual semantic labeler of noun & verb using **Hidden Markov Model**.
- Influential user set identifier in social network using **Genetic Algorithm**.
- Peer-to-Peer Marketplace website using **MySQL, Python** for backend and **JavaScript** for frontend.

INTERESTS

Data Mining, Time Series, Computational Social Science, Social Media Mining, Anomaly Detection, Machine Learning, Data Sciences, Network Analysis, Natural Language, Statistical Modeling.

SKILLS

Programming: Python, Java, C/C++, Bash, HTML, CSS, Javascript.
Web & DB: MySQL, PostgreSQL, BigQuery, MongoDB, GCP, AWS, Flask, Hadoop, Spark.
Libraries: PyTorch, TensorFlow, Keras, OpenCV, Stanford CoreNLP, NLTK, Pandas, Scikit-Learn.
Tool: MATLAB, R, Docker, LaTeX, Heroku, Git.

[*CV compiled on 2021-08-30*]