Asif Zaman

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Employment

Backend and ML Developer **ReccEngine** **2024 – 2025**
• Founded an e-commerce plugin for enabling fast reverse image search for end-users to find products
• Plugins were developed for integrating into any stack as well as popular platforms such as WordPress and Shopify
• Dashboard for monitoring growth and sales in various time resolutions along with various KPIs
• Text, Gesture, and voice-based search with personal recommendations based on historical usage(under development)

Graduate Teaching Assistant **Washington State University** **2022 – 2024**
• Designed and taught software engineering principles courses with hands-on practical sessions in offline and online settings
• Advised students on the coursework, conducted individual progress evaluations, graded biweekly project milestones, and proctored on-campus and off-campus exams.
• CPT_S 422 Software Engr Principle II Taking online review class, advising and grading team projects.
• CPT_S 322 Software Engr Principle I am taking an in-person review class with a Q/A session, advising and grading biweekly project milestones for each group.
• CPT_S 321 Object-Oriented Software Principles Performing weekly evaluation of the course progress in one-on-one meetings with students.

Graduate Research Assistant **Washington State University** **2023 – 2023**
• Integrated FlowDist and SEADS tools to create a highly configurable, continuous testbed environment, maximally imitating real-world large-scale distributed system scenarios. Leveraging program analysis to assess the system for 11 systems.
• Developed and contributed to advanced tools like SIFA and DistMeasure by incorporating machine learning and reinforcement learning modules, leading to more intelligent security assessments. Identified key features for future analysis.
• Conducted the Master's thesis on "Understanding Validity of Real-World Security Patches," expanding the research scope by analyzing data from GitHub and NVD. Covered all aspects of the patches and integrated recent data of 8 years.

Research Assistant **Data and Design Lab** **2019 – 2022**
• Led the first comprehensive analysis and visualization of air quality, providing key insights for policy recommendations.
• Finding the relationship between human activity due to COVID-19 lockdown with air quality and meteorological variables.
• Analyzed spatio-temporal electricity usage patterns in residential, roadside, and industrial sectors, examining Dhaka billing data. With new insights and findings, correlation analysis was performed with night-time light image data.
• Conducted exploratory study with personal data acquired from Google and Facebook in the Digital Footprint Project
• Conducted research on digital privacy policies, identifying contradictions and using machine learning to develop policy summaries, enhancing user privacy awareness. Applied various supervised and unsupervised techniques.
• **Code4myself** project for personal spatiotemporal and social media network data analytics and inference.

Research Associate (part-time) **AGenCy Lab** **2020 – 2021**
• Led air quality monitoring project for Dhaka City funded by the ICT Division, Bangladesh, providing actionable insights for urban environmental planning. Novel analysis of indoor air quality and meteorological variable reading.
• Studying the economic, social, and environmental data retracting and extending Dhaka city.
• Developed GIS-based visualization interfaces for rivers, forests, and urban areas, and conducted location surveys for deploying prototype air quality sensors across Dhaka. Designed sensor deployment layout for maximal coverage.

Technical Consultant (contractual) **Cranberry Technologies** **2021 – 2021**
• Setting up the technical preparation of the newfound joint office suite. Advising on the design of the company website.
• Developed automated tools and scripts for data scraping and crawling, enhancing software testing efficiency and improving data collection for e-commerce analysis, while training and advising tech and non-tech interns on data collection techniques
• Teaching data-driven applications and IT business analytics. E-commerce Facebook page message analysis.
• Gaining an understanding of the recruitment process. Later participated in several interviews both onsite and online.
• Multi-phase evaluation of technical questions and problem-solving on DBMS, as well as evaluation of communication skills.
• Survey with field agents and e-commerce delivery men to gain insight into the residential and route information of Dhaka

GIS Web Module Designer (contractual) **Cognitive Agents and Interaction Lab** **2021 – 2021**
• Web Development and server deployment of GIS module intended as a testbed tool for road network optimization project.
• Provided advising sessions on the implemented technology - OpenStreetMap library and server design using Flask.

Head of AI (part-time) **Quixx** **2021 – 2021**
• Engineering the first artificial intelligence-powered delivery management company in Bangladesh.
• Multigranualr Revenue Forecasting Visualizing revenue generated from deliveries and forecasting future trends.
• Designed a Facebook Messenger chatbot called Parrot for local e-commerce platforms, automating order placements and streamlining customer interactions. Implemented order management, tutorial, and integration with QUIXX Maps.
• Fieldwork on overseeing geographic data collection and deliverymen locomotion.

Projects

• **KrishokerHasi** (2017)**:** Developed an agriculture app integrating social networking, news, tutorials, and a recommender system, facilitating knowledge sharing and decision-making for farmers. integrated calling and email services.
• **Stock Management System** (2018): Created an inventory management system for traders and wholesalers, enhancing operational efficiency through Google chart API for real-time analytics. Implemented report generation and analytics.
• **FMRI Reading Predictor** (2019): Conducted experiments with various machine learning models on FMRI voxel data to predict human thought processes. Various brain regions were determined to activate different objects seen by participants.
• **Bangla OCR** (2019): Built a tool for segmenting and recognizing Bangla handwritten scripts using OPTICS and LineHTR. Integrated spell checker for all standards for the Bangla language. A first comprehensive tool for various handwritings.
• **QUIXX Maps** (2020): Developed a map application for Dhaka, optimizing logistics companies' delivery routes and task prioritization. Designed an Android/Web application with open-source data collection tools for residential addresses.
• **Parrot** (2020): Designed a Facebook Messenger chatbot for local e-commerce platforms, automating order placements and streamlining customer interactions. Implemented order management, tutorial, and integration with QUIXX Maps.
• **BDQOL** (2021): Collaborated on the visualization and analysis of division-level disaster and slum data in Bangladesh, providing regional planning and development insights. Released publicly available dataset of various composite indicators.
• **CAIL Map** (2022): Developed and deployed a GIS module for the Cognitive Agents and Interaction Lab, enabling spatio-temporal analytics for path optimization and project support. Basis for subsequent GIS project.
• **Branch Prediction** (2022): Applied machine learning and deep learning techniques to predict branch patterns, improving computational efficiency in hardware processes. Tested six benchmarks and achieved the highest accuracy.
• **WSU Privacy Policy Analytics** (2023): Analyzed WSU platform privacy policies using a deep learning model trained on OPP-115 data, uncovering specific insights on policy applications across platforms.

Languages and Technologies

Back End: Python, PHP, JAVA, C++, C# **Front End:** JavaScript, HTML, CSS **DBMS:** SQL, MongoDB, Firebase
DevOps: Nginx, Apache, Gunicorn **Data Collection:** Selenium, Requests **Linux System:** Ubuntu Server, Bash
Machine Learning Tools: Pytorch, Keras, FlairNLP, Scikit-learn, Tensorflow, SHAP, FAISS, DeepImageSearch, Ultralytics
Visualization: Leaflet, Plotly, Seaborn, Matplotlib C3, Google Charts, Chart.js **Miscellaneous:** Git, LaTex, R, Postman

Education

Masters of Science (MS) − Computer Science, **Washington State University.** CGPA: 3.27 **2024**
Bachelor of Science (BS) − Computer Science and Engineering, **University of Dhaka.** CGPA: 3.21 **2020**

Publications

• **A. Zaman,** S.B. Rabbani, R.R. Haque, M. Zaber. Seasonal, Temporal and Spatial Variation of Particulate Matter Concentration in Bangladesh: A Longitudinal Analysis. TenSYMP 2021
• Fu, Xiaoqin; **Zaman, Asif**; Cai, Haipeng DistMeasure: A Framework for Run-Time Characterization and Quality Assessment of Distributed Software via Interprocess Communications. TOSEM-2024-0493.R1 [Impact Factor ≡ 6.6]
• **A. Zaman,** M. Zaber. (2024). Understanding and forecasting the pattern of air pollution in Bangladesh. [Impact Factor ≡ 2.9] (Submitted first draft and first review received from editors and reviewer feedback)
• Yu Nong, Zhengsong Zhang, **Asif Zaman**, Haipeng Cai Revisiting the Reliability of Real-World Vulnerability Patches FSE 2015 [Impact Factor ≡ 7.8] (Submitted and received editors and reviewer feedback)

Awards & Achievements

• **Mentorship:** Mentored Cybersecurity Education and Research student, Fall 2022