ASEEF ALI HASAN

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EDUCATION

University of Toronto – B.S. Computer Science, Cognitive Science, Statistics **May 2027**

Relevant Coursework: Statistics and Data Science, Object Oriented Programming, Linear Algebra, Calculus I&II, Discrete Math

EXPERIENCE

Communications Security Establishment Canada (CSE) ***Ottawa, ON***

Incoming Software Engineer Intern *September 2024 – December 2024*

University of Toronto, Department of Physics ***Toronto, ON***

Undergraduate Research Assistant – AIPS Lab *May 2024 – August 2024*

- Lead the model-fine-tuning team to develop and train a DPO pipeline for the Mistral 7B model on the UltraFeedback dataset with over 100,000 data points, achieving a 92% accuracy on Nvidia P100 GPUs reducing training time by 20%.
- Automated a code-stepping function with Gemini 1.5 Flash, TextGrad and PyTorch to optimize prompting and line-by-line Python code generation leading 30% reduction in development time by iteratively refining code solutions.
- Utilized TensorFlow to fine-tune the Google Gemma-2b model on data science and Python code generation with SFT.
- Combined GPT-4 and the arXiv API to gather research articles and automatically prompt for the detection of physics simulations.

Stanford University ***Remote***

Student Instructor *April 2024 – May 2024*

- Taught CS106A: Programming Methodologies to a group of 11 students covering topics in Python including libraries like Karel.

Uber ***Remote***

Software Engineering Career Prep Fellow *February 2024 – August 2024*

- Participated in workshops to improve technical and professional skills by completing data structures and algorithms problems.
- Worked with industry mentors to receive personalized guidance aimed at reaching career goals and improving technical abilities.

CouBon Ltd. ***Toronto, ON***

Full Stack Software Developer *October 2023 – August 2024*

- Leveraged HTML/CSS to design a user-friendly front-end dashboard and pop-ups for 50+ restaurants to manage their coupons.
- Engineered an AngularJS UI (TypeScript, JavaScript) to store and retrieve customer data through Firebase (NoSQL) database, handling multiple input and file types enabling registration and edit functionality resulting in 30% more user engagement.
- Integrated RESTful APIs enabling real-time retrieval of coupon KPIs in sales, marketing, finance and overall usage.
- Catalogued KPI metrics using Chart.js to create dynamic data visualization in conjunction with the OpenAI API to analyze the data and offer actionable insights resulting in a 15% boost in revenue.

PROJECTS

UNICEF Conflict Prediction using Machine Learning Models | Python, Pandas, Plotly, NumPy, SciPy, Scikit-Learn / GitHub

- Created a new model for UNICEF with 88% accuracy in predicting real-world conflict using Pandas, SciPy and Scikit-Learn
- Worked with data from UNICEF and Dr. Schwartz using statistical methods like hypothesis testing, correlation estimation, linear regression, classification to predict conflict worldwide and assess the machine learning models, (xgboost, ffnn, transformer).
- Implemented a forward selection stepwise model to identify UNICEF/FSI data subsets that negatively impacted model accuracy.
- Developed easy-to-understand visualizations using Plotly, NumPy and Seaborn conveying data to a non-technical audience.
- Assessed ethical implications relevant to the current efforts of UNICEF to minimize global conflict and protect global security.

Halal Restaurant Finder | Python, Yelp Fusion API, Tkinter / GitHub

- Integrated the Yelp Fusion API to fetch restaurant data based on user-provided location and to retrieve and display real-time data and visually displayed restaurant information, including name, rating, and address, within the application.
- Developed a user-friendly Python application with a GUI (Graphical User Interface) using Tkinter.

University Application Helper | Java, JOptionPane / GitHub

- Utilized Java to create a program that helps users apply for university using coursework and grades through JOptionPane GUI.
- Reached 25+ high school students who used it in the 2023 University Application season across the Greater Toronto Area.

SKILLS

- **Languages:** Python, Java, SQL, HTML, CSS, JavaScript, TypeScript
- **Frameworks:** Node.js, Express.js, AngularJS, Pandas, Plotly, NumPy, SciPy, Scikit-Learn, PyTorch, TensorFlow
- **Tools:** Excel (VBA, Pivot Tables), MS Office Firebase, Git, GitHub, VSCode, Jupyter, Linux, Windows, MacOS, Power BI