ASEEF ALI HASAN

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EDUCATION

University of Toronto – B.S. Computer Science and Statistics (ASIP Co-op) **Expected May 2027**

Relevant Coursework: Data Science, Object Oriented Programming, Software Design, Linear Algebra, Multivariable Calculus

EXPERIENCE

Government of Canada, Department of National Defence ***September 2024 – Present***

Software Engineer Intern *Ottawa, ON*

- Automated deployment of cyber ranges on Azure using Pulumi with Python, improving infrastructure setup efficiency by 40%.
- Developed Ansible playbooks to configure virtual machines with the Sleuth Kit, enabling real-time hardware troubleshooting.
- Deployed a web app with Java and Spring Boot designed with Vaadin to allow users to customize their deployment of ranges.

University of Toronto, Department of Physics (AIPS Lab) ***May 2024 – August 2024***

Undergraduate Research Assistant *Toronto, ON*

- Led the fine-tuning team to develop and a physics LLM in a DPO pipeline for the Mistral 7B model on the Hugging Face datasets with over 100,000 data points, achieving a 92% accuracy on Nvidia P100 GPUs which reduced training time by 20%.
- Utilized Python, TensorFlow, Pandas and NumPy to fine-tune the Google Gemma-2b model on data science and Python code generation with SFT streamlining development for over 10 non-technical research staff.
- Automated a code-stepping function with Gemini 1.5 Flash, TextGrad (Gradient Descent) and PyTorch to optimize prompting and line-by-line Python code generation leading to a 10% reduction in development time by iteratively refining code solutions.
- Combined GPT-4, LangChain and the arXiv API to prompt for the presence of physics simulations in research articles.

Stanford University ***April 2024 – May 2024***

Student Instructor *Stanford, CA*

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

CouBon Ltd. ***October 2023 – August 2024***

Full Stack Software Developer *Toronto, ON*

- Leveraged HTML/CSS to design a user-friendly front-end dashboard and pop-ups for 50+ restaurants to manage their coupons.
- Engineered a UI using Angular and React (TypeScript & JavaScript) to store and retrieve customer data through Firebase (NoSQL) database, handling multiple input and file types enabling registration and edits resulting in 30% more user engagement.
- Integrated RESTful APIs with Node.js 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

- Developed a multiple linear regression model for UNICEF with 88% accuracy in predicting real-world conflict, utilizing Pandas, SciPy, and Scikit-Learn, and stepwise model selection to optimize accuracy with ML models like XGBoost and Transformer.
- Created visualizations with Plotly and Seaborn to communicate insights from UNICEF's researcher data, using statistical methods such as linear regression, classification, and hypothesis testing to assess model performance.

Contacts App | React, JavaScript, HTML/CSS, Flask, SQLite / GitHub

- Engineered a full-stack Contact Management App using React, Flask, and SQLite, enabling efficient CRUD operations with a user-friendly interface, modal dialogs, and RESTful API integration.
- Implemented frontend functionality for creating, updating, and deleting contacts, with backend support for data storage and retrieval, ensuring seamless interaction between client and server.

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.

SKILLS

- **Languages:** Python, Java, HTML, CSS, JavaScript, TypeScript, SQL, R
- **Libraries/Frameworks:** Angular Node.js, React, Pandas, Plotly, NumPy, Scikit-Learn, PyTorch, TensorFlow, Flask
- **Tools:** Firebase, Git, GitHub, VSCode, Jupyter, Linux, PowerBI, Azure, Bash, Powershell