UMAR
DABHOIWALA

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Final year Bachelor of Advanced Computing (Honours) student at Australian National University, specializing in Machine Learning and Artificial Intelligence. Passionate about programming and experienced in cybersecurity, risk management, and machine learning projects. Skilled in team collaboration and leveraging cutting-edge technologies for impressive solutions.

Education

Burgmann Anglican School

2014 – 2019

Graduated from high school with an ATAR of 98.0.

Bachelor of Advanced Computing (Honors) | Australian National University

2020 – PRESENT

Currently a final year student with a minor in Computer Science Foundations and a Specialization in Artificial Intelligence and Machine Learning.

Technical Skills

- Python
- Java
- JavaScript (TypeScript)
- SQL / MongoDB
- Go
- C++
- ARM32 Assembly
- Haskell
- R
- MATLAB

WORK EXPERIENCE

Penten: Applied AI Team

Junior Software Engineer, 2023 – Current

- Developed RESTful API's using FastAPI as a full stack developer for the Cyber Deception Range Cyber Security Product.
- Established robust interfaces with the backend MongoDB database, optimizing data retrieval and storage processes.
- Improved scheduler performance by 42% by employing Go language's asynchronous programming methodologies.
- Used Angular with TypeScript to help build the front-end interface, delivering an intuitive and seamless user experience.
- Integrated OpenAI's APIs into the product, leveraging advanced capabilities for enhanced functionality.
- Reduced OpenAI API expenditures by 57% while augmenting output, achieved through prompt compression techniques, strategic usage of on-premises models, and a tailor-made vector database retrieval mechanism.
- Utilized Angular with WebSocket's to dynamically stream critical real-time data to client dashboards.
- Fine-tuned open-source Large Language Models, Created Low-Rank Adaptation Models for Stable Diffusion Models and cultivated tailor-made models to create generative AI content specifically tailored to organizational use-cases.
- Conducted comprehensive code reviews, improving code quality, and fostering a collaborative team environment.

Software Engineering Internship, 2023

- Developed realistic documents using machine learning for honey files in intrusion detection for cybersecurity. for the Honey Trace Product,
- Created diverse file formats, including Word, Excel, PowerPoint, audio files, and fake websites.
- Modelled an interactive demo user interface with Flask, hosted on Google App Engine
- Delivered technical presentations to stakeholders, demonstrating excellent communication, and persuasion skills.

Department of Infrastructure Transport, Regional Development, Communications, and the Arts
Risk Management Team:
Internship, 2022 – 2023

- Contributed to the development of a coherent risk policy and participated in various risk management projects.
- Applied analytical and critical thinking skills for valuable insights and recommendations.
- Developed custom data management and visualization tools using Python and VBA, streamlining data analysis.
- Increased by data entry efficiency by 13% by eliminating the need for a task through VBA programming.
- Collaborated in creating a clear framework for the 2023 department-wide risk agenda, communicating with various branches for successful outcomes.

Freelance Web Development 2021 – 2022

- Created custom websites for clients using HTML, CSS, JavaScript, and static site generators like Hugo and Jekyll
- Offered assisted website hosting options on Virtual Private Servers
- Tailored client expectations and managed project timeframes effectively
- Developed aesthetically pleasing, navigable websites aligned with stakeholder preferences.
- Solved technical complexities through innovative solutions.
- Provided customer service and support post-website launch.

Private Tutor 2020 – 2022

- Tutored high school students in Physics, Chemistry, and Mathematics, focusing on guiding them to correct answers and understanding underlying frameworks, resulting in an approximate 25% average grade improvement.
- Communicated effectively with students and parents to address weaknesses and devise strategies for improvement.
- Supplied supplementary study materials and resources to reinforce learning and boost confidence.

PROJECTS

Research Project: Hyperinflation Prediction using Outlier Detection – 2022

- Explored advanced outlier detection techniques to predict hyperinflation in for the ANU Advanced Computing Research Methods course.
- Utilized machine learning and statistical methods, with the most effective approach being Holt-Winters forecasting coupled with a Neural Network for hyperinflation probability prediction.
- Achieved a Hyperinflation predication percentage of 74% on historical hyperinflation data.
- Analysed academic research papers to extract relevant information and techniques.
- Developed forecasting and machine learning software for future outlier detection using Python, MATLAB, and R
- Bridged statistic and economic concepts with computer science techniques.

Group Project: Terminal Based Dungeon Crawler Game Engine – 2021

- Collaborated in a group of three for the ANU Software Design Methodologies course to build a Java game engine that transformed XML Game Files into interactive terminal games.
- Engine validated XML files, creating dungeon rooms, items, potions, monsters, special effects, and more, allowing for diverse game expression.
- Created a meta programming language for use in the game engine allowing greater flexibility in the game design.
- Planned project design and scope, analysing engineering aspects and hierarchy of classes and functions considering complexity and project needs.
- Communicated effectively with team members, holding frequent meetings to discuss progress and challenges.
- Designed novel solutions for complex problems such as non-standard player input and intricate item-effect combinations.