REHMAN MALLAH

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EDUCATION

KING'S COLLEGE LONDON | London, England   **Sep 2021 – July 2024**
BSc Computer Science and Artificial Intelligence
Relevant coursework: Optimisation methods, Operating Systems & Compilers, Software Engineering, Machine Learning, Neural networks, Deep Learning & Pattern recognition.

TECHNICAL SKILLS

- AWS Certified Cloud Practitioner and CompTIA A+ Certified
- Programming proficiency in Python (Django, Flask, FastAPI), C | Working proficiency in C++, Java, Scala
- Framework and Tools: Git, Docker, MS Azure, Kubernetes, Linux, HTML+ CSS, Pytorch, LangChain, SQL

EXPERIENCE

SecurEnvoy | Basingstoke, England   **May 2023 – Sep 2023**
Intern Tech Engineer
- Created Python & bash programs to automate integration testing, improving product reliability before production
- Performed local penetration tests to identify critical security threats on cloud platforms before deployment
- Optimised infrastructure management by implementing Kubernetes clusters and Docker containers, reducing deployment times greatly across AWS and Azure platforms
- Managed and setup VMs on VMware ESXi
- Enhanced software delivery processes by developing CI/CD pipelines in Azure DevOps with integrated continuous inspection tools
- Resolved technical issues for dozens of customers via Webex calls, ranging from installation to complex LDAP issues

NokarOnline | London, England
Support IT Engineer   **Jan 2021 – May 2021**
- Developed a Python web scraping tool to automate product information collection from major supermarket websites
- Streamlined user management on AWS by creating and organizing groups and OUs, ensuring compliance with company policies and enhancing overall system security
- Monitored EC2 compute servers on AWS and troubleshooted hardware and software faults on AWS lighthouse.

PROJECTS

Compiler optimisation using Ai (Python)   **Research Project**
- Conducted research on over a dozen Ai algorithms and machine learning techniques, applying these insights to model a compiler optimisation problem to be solved using Ai.
- Designed and Implemented a metaheuristic method with simulated annealing to identify optimal compiler flags for specific programs to improve their execution speed. Project was a success with a 20% performance increase
- Authored research paper, which demonstrated results comparable to the leading research in the field.

Venture capital portfolio management suite web application (Django & React JS)   **Group Project**
- Led six-person team in 2-month project for Wayra (Telefónica subsidiary) to develop portfolio management product
- Implemented hybrid Waterfall-Agile development model and engaged in continuous communication with the client over two months, organising meetings to gather requirements and addressing emerging issues.
- Utilised AirTable API to sync data from client database with our web application.
- Developed all database functionalities including capabilities to search, filter, add and delete records.

Large Language Model from Scratch (Python, Pytorch)   **Personal Project**
- Designed and implemented only the decoder transformer with sequential Neural Networks to create GPT LLM architecture.
- Tokenised input text using cl100k_base, converted it into vector embeddings, and applied a multi-head attention mechanism to generate decoder inputs for advanced sequence processing.
- Trained the neural network using a massive open-source replication of the WebText dataset from OpenAI
- Optimised model performance through hyperparameter tuning and gradient clipping methods.

Decentralised Automated Trading Bot with AWS Integration (Python)   **Personal Project**
- Developed a trading bot implementing statistical arbitrage strategies based on cointegration and Z-score analysis
- Integrated DYDX API for market data retrieval and order execution
- Deployed on AWS for 24/7 operation, utilising CRON for automation and Kelly Criterion for risk management

Floyd-Warshall Algorithm for computing transitive closure of a matrix (Python)   **Personal Project**

PDF to CSV data extractor using LangChain with OpenAI GPT (Python, Streamlit)   **Personal Project**