Muhammad Khan

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Education

Nottingham Trent University, Nottingham, UK
BSc. (Hons.) Computer Science   **January 2022 – June 2025**
Diploma in Professional Practice (Level 5)   **June 2023 – June 2024**

Professional Experience

Nottingham Trent University, Nottingham, UK
Lead Student Mentor   **September 2024 – Present**
- Mentored over 100 students, achieving a 30% improvement in retention and academic performance.
- Organized workshops, study groups, and online sessions, enhancing event scheduling and coordination.
- Collaborated with academic and administrative staff to align student activities with institutional objectives.

Citi Bank, Belfast, UK
Software Engineer Placement   **June 2023 – May 2024**
- Built a data processing engine in Python, integrating Hadoop and Azure for efficient large-scale data processing.
- Developed a scalable full-stack application using Spring Boot, MongoDB, and Kafka, improving performance.
- Implemented Redis for caching, improving response times by 30% while optimizing data retrieval and storage.
- Leveraged Azure Data Factory for automated ETL processes, managing secure and seamless cloud data transfer.
- Conducted CI/CD pipeline setup with Jenkins, ensuring code quality with JUnit testing and optimizing release.

Nottingham Trent University, Nottingham, UK
Customer Service Advisor   **August 2022 – June 2023**
- Managed over 150 customer interactions daily with a 95% satisfaction rate, achieving service targets.
- Resolved complex issues by coordinating with internal teams and providing clear, effective communication.
- Administered student records, ensuring data accuracy and timely updates.

Personal Projects

Neuromorphic Memory Compression   Live Demo
- Developed a data visualization and anomaly detection application using Python, Streamlit, and Plotly.
- Created a custom neuromorphic algorithm for time-series compression, improving data retention and processing efficiency.
- Applied Isolation Forest for accurate anomaly detection, enhancing data analysis capabilities.
- Deployed the app with Streamlit and Docker, enabling real-time data exploration and seamless user interaction.
- Incorporated visualization tools like heatmaps and correlation matrices for comprehensive data insights.

AI-Powered Healthcare Assistant   GitHub Link
- Built a disease prediction model using Python, Meta's LLAMA 3.2, and scikit-learn, achieving 85% accuracy.
- Fine-tuned LLAMA 3.2 for healthcare data, enhancing predictive and conversational functionalities.
- Developed a full-stack application with Flask, SpringBoot backend, and ReactJS frontend for a responsive UI.
- Integrated an encrypted NLP chatbot hosted on HuggingFace, ensuring personalized health recommendations.
- Deployed on Microsoft Azure with Docker and Kubernetes, utilizing Azure ML for training and CI/CD pipelines.
- Implemented data encryption and secure APIs to maintain HIPAA compliance and protect sensitive information.

Technical Proficiencies

- **Programming Languages:** Java, Python, C++, JavaScript, TypeScript, HTML5, CSS3
- **Frameworks & Libraries:** SpringBoot, Django, Flask, React, TensorFlow, PyTorch, scikit-learn, Streamlit, Plotly
- **Database Technologies:** MySQL, PostgreSQL, MongoDB, Cassandra, Redis
- **Cloud & DevOps:** Microsoft Azure, Docker, Kubernetes, Jenkins, GitLab CI/CD
- **Tools & Methodologies:** Git, JIRA, Confluence, Agile/Scrum, TDD, BDD, Azure DevOps
- **Other Skills:** RESTful API Design, Microservices Architecture, System Design, Data Structures, Algorithms