

Abel Thomas Babu

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EDUCATION

Newcastle University — M.Sc. Advanced Computer Science (Distinction)

Sept 2023 – Aug 2024, Newcastle

Vice Chancellor's International Scholarship recipient, NCL+ Award for Extracurricular Involvement

Saintgits College of Engineering — B.Tech in Computer Science and Engineering

Jun 2018 – Apr 2022, Kerala

PROJECTS

Vision-Based AI for Automation | Python, OpenCV, PyTorch, Gymnasium, stable-baselines3

- Developed a vision-based AI agent to automate tasks in applications using a custom object detector and Deep Q-Network (DQN).
- Engineered a high-performance object detection model, boosting capture-to-detection frame rate by over 50% via optimised libraries and multi-threading.
- Trained a DQN agent on commodity hardware to learn optimal strategies from visual data using a novel reward system for long-term progression.
- Demonstrated robust AI generalisation by training on one application and achieving effective automation on multiple unseen applications via visual interpretation.

Scalable Data Analytics with PySpark | Python, PySpark

- Analysed and optimised a large-scale taxi trip dataset, architecting data pipelines to unlock critical insights into urban mobility patterns and operational efficiencies.
- Executed comprehensive data cleaning, transformation, and integration, performing in-depth profitability modelling that directly informed strategic decision-making for service optimisation.
- Utilised PySpark for efficient processing of voluminous data, showcasing big data scalability.

Machine Learning Techniques for Traffic Accident Severity Prediction | Python

- Applied ML strategies to the FARS dataset to predict road traffic accident severity, contributing to potential road safety enhancements.
- Executed advanced feature engineering and model selection to improve prediction accuracy.
- Addressed complex data imbalances inherent in accident datasets, ensuring robust and reliable model performance crucial for life-saving applications.

WORK EXPERIENCE

Apps Team Technologies | Swift, Xcode, UIKit

Dec 2022 – Feb 2023

Software Developer Intern

Kerala, India

- Designed and implemented numerous key UI screens and custom UI components for a logistics iOS app, ensuring intuitive navigation.
- Resolved critical list rendering inefficiencies, significantly improving scrolling performance (est. 35% faster interaction) and app responsiveness.
- Collaborated with senior developers and QA by creating unit tests, aiding early bug detection and enhancing product stability.

Kompetenzen Technologies | Java, React, Eclipse, Spring-boot, MySQL

Jun 2022 – Nov 2022

Full-stack Developer Intern

Kerala, India

- Delivered features across several core e-commerce modules.
- Built and optimised React components, enhancing UX in product discovery, cart interactions, and account management.
- Developed Java/Spring Boot REST APIs using MySQL for key e-commerce operations (inventory, payments, customer data).
- Integrated React frontend features with Java backend services, streamlining e-commerce workflows.

SKILLS

Programming: Python, Java, JavaScript, Swift, C, C++

AI/ML/Data: PyTorch, OpenCV, Scikit-learn, Keras, LangChain, Gymnasium, Stable Baselines3, NumPy, Pandas, PySpark

Web: HTML5, CSS3, React, Bootstrap, Tailwind CSS, Flask, FastAPI, Spring Boot

Mobile: UIKit (iOS)

Databases: MySQL, Firebase

Tools/Platforms: Git, Docker, Kubernetes, Xcode, Power BI