Thithira Paranawithana

Final-Year Computer Engineering Undergraduate
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Summary

I am a final-year Computer Engineering undergraduate (having all coursework completed), deeply passionate about software and full-stack development, AI/ML, and computer vision. My academic background has provided a solid foundation in computer science fundamentals, artificial intelligence, mathematical modeling, and algorithmic optimization. I am naturally curious and motivated by the challenge of applying innovative technologies to build efficient, impactful, and real-world solutions.

Work Experience

Innovation Quotient (Pvt) Ltd, Colombo May 2024 - Nov 2024

Trainee Software Engineer

- Contributed to a full-stack enterprise human resource information system project, actively participating in backend API development, frontend implementation, and database operations.
- Involved in drafting BRS documentation, integrating APIs, ensuring seamless frontend-backend communication through structured testing and debugging.
- **Tech Stack:** React.js, Redux, C# (.NET Framework), Microsoft SQL Server, Postman, Figma, Github

Education

University of Sri Jayewardenepura, Sri Lanka 2021 - 2025

B.Sc. in Engineering (Hons), Computer Engineering
Specializing in Data Management *CGPA: 3.65*

Bandaranayake College Gampaha 2019

G.C.E Advanced Level (Physical Science Stream) *2As, 1B / Z score: 1.9884*

Skills

Programming Languages: C++, Python, Java, C#, JavaScript, SQL

Technical Fields: Software/Full-Stack Development, Machine Learning, Computer Vision, Deep Learning, Natural Language Processing

Databases: MySQL, Microsoft SQL Server, PostgreSQL

Tools & Services: Git, Github, PyCharm, VS Code, Postman, Visual Studio, Jupyter, Google Colab, Docker, Azure, Android Studio,IntelliJ

Libraries & Frameworks: React.js, Redux, Spring Boot, .NET, TensorFlow, OpenCV, Scikit-learn, Matplotlib, Pandas, NumPy

Projects

MotionMetrics - Sports Biomechanics System

Python, OpenCV, SpinView, MediaPipe, MATLAB

- Developed a comprehensive 3D sports biomechanics analysis system using synchronized stereo cameras and computer vision for accurate athletic movement assessment. Successfully bridged the accessibility gap between expensive professional motion capture systems and low-accuracy alternatives through hybrid marker based and marker-less detection approaches.
- My core contributions included implementing stereo camera calibration achieving 0.07 reprojection error, 3D triangulation, building an interactive biomechanical analyzer with 3D visualization and automated reporting capabilities, and validating system effectiveness through comparative analysis of normal versus abnormal gait patterns.

NextStop - Bus Ticket Reservation System

Spring Boot, Netflix Eureka Server, Spring Cloud Gateway, React.js, RESTful APIs, PostgreSQL

- Developed a distributed microservices-based bus ticket reservation system that streamlined seat booking, user authentication, bus, route, schedule and user management, and payment processing.
- Implemented loosely coupled services with dedicated databases. Designed a responsive web application for seamless user experience.

SafeLABS - Laboratory Management System

React.js, Redux, C# (.NET Framework), Microsoft SQL Server, Python, OpenCV, YOLO, TensorFlow

- Designed and developed a secure laboratory management solution for a chemical lab, integrating face recognition-based user authentication and object detection for safety compliance.
- The system enables real-time authentication control with automated attendance tracking, manages personnel and resource records, provides lab occupancy updates, and announcements via a responsive web application.

Neural Network Based Hyperparameter Optimization for Random Forest Models

Python, TensorFlow, NumPy, Pandas, Scikit-learn, Matplotlib

- Individual research project, where I proposed a meta-learning approach using a neural network to predict the most suitable hyperparameter combination for Random Forest classifiers based on dataset characteristics.

CuddleCam - Baby Monitoring System

Python, OpenCV, TensorFlow, MediaPipe, Flask, Flutter

- Developed a portable baby monitoring system using computer vision and deep learning to detect infant emotions and poses, enabling identification of potentially risky behaviors.
- Integrated real-time alerts and video streaming through a mobile application to assist with infant supervision.

MazeRunners - Advanced Maze Generation and Path Solver

Python, Pathfinding Algorithms (BFS, DFS, A, Dijkstra), OpenCV, NumPy, Tkinter*

- Developed an advanced maze generation and solving application implementing multiple pathfinding algorithms with real-time visualization.
- System integrates computer vision techniques including Canny edge detection, adaptive thresholding, and Hough transform to extract maze structures from images.

inPATH - Learning Management System

Python, Gradient Boosting Classifier, Pandas, NumPy, Scikit-learn, HTML, CSS, JavaScript

- A student–lecturer portal system with features like attendance management, personalized dashboards, automated exam seating, and recommendation of optimal academic fields based on student performance at the examination.
- My contribution was developing a Gradient Boosting Classifier for recommendation of optimal academic fields.

Bowling Game

C++

- A console-based, fully functional bowling game which uses basic principles of C++ programming language.

Certifications

Machine Learning Specialization - DeepLearning.AI & Stanford University

Problem Solving - HackerRank

Programming in Python 1 & 2 - open.uom.lk

Introduction to Machine Learning - Kaggle

TensorFlow Developer Certificate Bootcamp - Zero To Mastery (Following)

Highlights

Dean's List: Semester 1

Coding Competitions: CodeSquad 3.0, MoraExtreme

Extra-Curricular: Organizing committee member for ENIGMA Engineering Exhibition, School Carrom Team, Volunteer - Beach Cleanups & Blood Donation Camps

Interests: Software/Full-stack development, Machine Learning, Computer Vision, Deep Learning, Cricket, Football, Carrom, Photo Editing

References

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