

THITHIRA PARANAWITHANA

Final-Year Computer Engineering Undergraduate

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SUMMARY

I am a final-year Computer Engineering undergraduate following a specialization in Data Management, deeply passionate about software and full-stack development, machine learning, 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.

EDUCATION

University of Sri Jayewardenepura, Sri Lanka	2021 - Present
<i>B.Sc. in Engineering (Hons), Computer Engineering</i>	CGPA: 3.65
<i>Specializing in Data Management</i>	
Bandaranayake College Gampaha	2019
<i>G.C.E Advanced Level (Physical Science Stream)</i>	2As, 1B / Z score: 1.9884
Bandaranayake College Gampaha	2016
<i>G.C.E Ordinary Level</i>	9A Passes

WORK EXPERIENCE

Innovation Quotient (Pvt) Ltd, Colombo	May 2024 - Nov 2024
<i>Trainee Software Engineer</i>	
<ul style="list-style-type: none">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	

SKILLS

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

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

Databases: MySQL, Microsoft SQL Server, PostgreSQL

Tools & Services: Git, Github, PyCharm, VS Code, Postman, Visual Studio, Jupyter, Google Colab, Docker, Cisco Packet Tracer, Weka, Android Studio, IntelliJ

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

PROJECTS

MotionMetrics - Sports Biomechanics System (Ongoing) 🐙

Python, OpenCV, SpinView, PySpin, MediaPipe, MATLAB

- This is my final year project. Developing a comprehensive sports biomechanics system utilizing synchronized stereo cameras and computer vision for 3D reconstruction of athletic movements. Implementing marker-less pose estimation with MediaPipe integration, stereo calibration algorithms for movement and joint angle analysis. Building an interactive Python-based analysis platform featuring velocity/acceleration calculations, bilateral movement comparison, and automated PDF report generation with clinical insights.

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 - Basic - 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, Data Management, Cricket, Football, Carrom, Photo Editing

REFERENCES

Dr. Udaya Wijenayake

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