THITHIRA PARANAWITHANA

Computer Engineering Graduate (1st Class Hons)

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SUMMARY

I am a Computer Engineering graduate, 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

Trainee Software Engineer — **May 2024 - Nov 2024**

Innovation Quotient (Pvt) Ltd, Colombo

- 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

B.Sc. in Engineering Hons, Computer Engineering — **Mar 2021 - Jul 2025**

University of Sri Jayewardenepura, Sri Lanka.

- First-Class Honours

G.C.E Advance Level (Physical Science Stream) — **2019**

Bandaranayake College Gampaha.

- 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
- **Databases:** MySQL, Microsoft SQL Server, PostgreSQL, MongoDB
- **Tools & Services:** Git, Github, Docker, PyCharm, VS Code, Postman, Visual Studio, Jupyter, Google Colab, Azure, Android Studio, IntelliJ, MATLAB
- **Libraries & Frameworks:** React.js, Spring Boot, .NET, TensorFlow, OpenCV, Scikit-learn, Matplotlib, Pandas, NumPy

PROJECTS

MotionMetrics - Sports Biomechanics System (Final Year Project) — **Jan 2025 - Jul 2025**

- 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.
- **Tech Stack :** *Python, OpenCV, SpinView, MediaPipe, MATLAB*

NextStop - Bus Ticket Reservation System — **Jun 2025 - Jul 2025**

- Developed a distributed microservices-based bus ticket reservation system that streamlined seat booking, user authentication, bus and route management, and payment processing. Architected loosely coupled services with dedicated databases for enhanced scalability and maintainability. Designed a responsive web application featuring real-time seat availability, interactive booking interface, booking management with cancellation capabilities, and automated email notifications, delivering seamless user experience.
- **Tech Stack :** *Spring Boot, Netflix Eureka Server, Spring Cloud Gateway, React.js, RESTful APIs, PostgreSQL, Postman*

SafeLABS - Laboratory Management System
Aug 2024 - Mar 2025

- 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.
- **Tech Stack :** *React.js, Redux, C# (.NET Framework), Microsoft SQL Server, Postman, Python, OpenCV, YOLO, TensorFlow, RESTful APIs*

Hyperparameter Optimization in Random Forest Models
Dec 2024 - Mar 2025

- 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.
- **Tech Stack :** *Python, TensorFlow, NumPy, Pandas, Scikit-learn, Matplotlib*

CuddleCam - Baby Monitoring System
Jan 2024 - Mar 2024

- 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.
- **Tech Stack :** *Python, OpenCV, TensorFlow, MediaPipe, Flask, Flutter*

MazeRunners - Advanced Maze Generation and Path Solver
Mar 2025

- Developed an advanced maze generation and solving application implementing multiple pathfinding algorithms (BFS, DFS, A*, Dijkstra's) with real-time visualization. System integrates computer vision techniques including Canny edge detection, adaptive thresholding, and Hough transform to extract maze structures from images.
- **Tech Stack :** *Python, Pathfinding Algorithms (BFS, DFS, A*, Dijkstra), OpenCV, NumPy, Tkinter, Hough transform, Canny edge detection, Gaussian blur*

inPATH - Learning Management System
Jan 2023 - Apr 2023

- 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.
- **Tech Stack :** *Python, Gradient Boosting Classifier, Pandas, NumPy, Scikit-learn, HTML, CSS, JavaScript*

Library Management System

- A console-based Library Management System that demonstrates solid Object-Oriented Programming principles, featuring member enrollment, book inventory management, and a borrowing/return tracking mechanism.
- **Tech Stack :** *C++*

Bowling Game

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

HIGHLIGHTS

- **Dean's List :** Semester 1
- **Coding Competitions Participated :** CodeSquad 3.0, MoraExtreme
- **Interests :** Software/Full-stack development, Machine Learning, Computer Vision, Deep Learning, Cricket, Football, Carrom, Photo Editing
- **Extra-Curricular :** Organizing committee member for ENIGMA Engineering Exhibition, School Carrom Team, Volunteer – Beach Cleanups & Blood Donation Camps

CERTIFICATIONS

- Machine Learning Specialization - DeepLearning.AI & Stanford University
- Problem Solving - HackerRank
- Programming in Python - open.uom.lk
- Tensorflow for deep learning bootcamp - Andrei Neagoie, Daniel (Following)

REFERENCES

Dr. Udaya Wijenayake
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