Chamod Shyamal Madusan

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Summary

I am a proactive B.Sc. Engineering graduate in Electronic and Telecommunication Engineering from the University of Moratuwa, with First Class Honours. With strong programming skills and mathematical thinking, my interests predominantly lie in systems and high-performance computing, Machine Learning, Generative AI, Video Game Development.

Education

•University of Moratuwa *2021 – 2025*
B.Sc. (Hons) in Electronic & Telecommunication Engineering GPA: 3.76/4.00 (First Class)

•Richmond College, Galle *2006 – 2019*
G.C.E. Advanced Level Examination (Physical Science Stream) Ranked: 50th in country & 5th in district (z-score: 2.7754)

•University of Moratuwa (Open Learning Platform)
Trainee Full Stack Developer
- *Python for Beginners*
- *Python Programming*
- *Server-side Web Programming*
- *Web Design for Beginners*
- *Front-End Web Development*
- *Professional Practice in Software Development*

•Other Certifications & Specializations
- *Deep Learning Specialization – DeepLearning.AI (Coursera)*
- *Game Design & Development with Unity 2020 Specialization – Michigan State University (Coursera)*
- *Generative AI with Large Language Models – DeepLearning.AI & Amazon Web Services (Coursera)*

Experience

•PickMe (Driver Scrum Team) *Aug 2025 - Present*
Software Engineer Colombo, Sri Lanka
- Develop backend features and microservices, and fix bugs to ensure optimal system performance on the driver app side.
- Maintain and enhance 15+ core services, collaborating across 200+ interconnected microservices.
- Apply Scrum practices, CI/CD pipelines, and REST API development using Clean Architecture principles for scalable and reliable solutions.
- Tools & Technologies Used: *Golang (GoLand), PHP, JavaScript (PHPStorm), MySQL, Git/GitLab, ArgoCD, Kibana, Jira, Postman, Ubuntu/Linux Environment*

•MAS Holdings Bodyline Pvt Ltd (Autonomation Team) *Dec 2023 - May 2024*
Machine Learning Engineer (Intern) Colombo, Sri Lanka
- Developed a computer vision model for error detection in labels, utilizing Raspberry Pi for model deployment, and created a local web app to run the error detection model on Raspberry Pi.
- Optimized model for embedded-level deployment and accelerated using Google Coral TPU.
- Developed PLC programs for reconstructing and programming Automated Guided Vehicles (AGVs), emphasizing security and reliability.

Personal Projects

•AI-powered Fitness Recommendation System *2024-25*
Developed a microservices-based fitness platform providing personalized AI-driven recommendations.
- Built using a microservices architecture with asynchronous communication through RabbitMQ for scalable and decoupled system design.
- Implemented OAuth2 authentication for secure user access and protected personalized fitness data.
- Used Gemini AI model to analyze user data and generate fitness and wellness recommendations.
- Tools & technologies used: *Spring Boot, RabbitMQ, OAuth2, React, Gemini AI, Java, JavaScript, PostgreSQL, MongoDB*

•Enfluent - AI powered language learning platform *2024-25*
Developed a personalized language learning platform.
- Focuses on learning reading, writing, and speaking based on IELTS criteria.
- Provides individual AI grading for each criterion to evaluate progress.
- Created a 3D AI chatbot avatar provides real-time feedback on speech, including grammar, pronunciation, and confidence levels, enhancing learner engagement.

– Incorporated data from embedded systems (e.g., heart rate and emotional analysis) to adapt lesson plans and provide tailored feedback for individual learners.
– Tools & technologies used: *React, Deepface, OpenAI, Python, ThreeJS, Blender, JavaScript, Rhubarb, Java*

•Cyborg Fury - Third Person Shooting Game *2024-25*

Created an RPG shooting game with realistic 3D graphics using the Unreal Engine.

– Developed core mechanics like third-/first-person mode switching, weapon pickups, dodging, and tactical movement (ladder, elevator, cover).
– Includes intelligent enemy AI and customizable graphics for enhanced game-play.
– Designed intelligent enemy AI with a player-buddy system for cooperative gameplay.
– Added vehicle control for spaceships and sci-fi vehicles to enhance exploration and combat.
– Implemented melee finishers, drones, turrets, power-ups, and sniper functionality for combat variety.
– Created a customizable UI with graphics settings and a fully functional main menu.
– Built with Unreal Engine 5.4 and Blueprints, the game offers immersive realistic graphics.

•Open World Game with Questionnaire Web App *2024*

Start an exciting 3D RPG adventure in an open world, made for Unity WebGL platform.

– Beautifully optimized worlds and an engaging narrative.
– Includes an open-world adventure with realistic mechanics and quests like shooting, hunting, farming and stealing.
– Includes advanced weapons, vehicle control, a shop system, dynamic weather, and realistic gameplay.
– Develop a questionnaire website focused on promoting energy-saving habits and sustainable practices.
– Tools & technologies used: *Unity Engine, Character Creator 4, Iclone 8, C#, Java, JavaScript, React*

•Simple E-commerce Website *2024*

Developed a comprehensive e-commerce website tailored for selling headphones, speakers, and smartwatches.

– Integrated payment processing, a user-friendly shopping cart, and efficient item management for seamless e-commerce functionality.
– Built with Next.js and React for a responsive, visually engaging, and intuitive shopping experience, powered by Sanity for backend operations.
– Tools & technologies used: *React, Next.js, Sanity, JavaScript, CSS, Stripe*

•Securing a Smart Building System *2025*

Conducted multi-phase security evaluation and defense strategy development for IoT-enabled smart buildings.

– Identified crypto and access control flaws in smart building; mapped to CVEs and proposed mitigations.
– Built and tested secure encryption, decryption, and hashing APIs using Python (Flask, Cryptography).
– Conducted penetration testing on exposed APIs; documented findings and recommended fixes.
– Implemented rule-based intrusion detection for login abuse, spamming, and sensor anomalies; validated via simulations.
– Tools & technologies used: *Python, Flask, Cryptography, Postman, CVE Database, API Testing, Wireshark*

•Ancient Language Character Translation *2025*

Developed a Sinhala ancient handwritten character recognition system using deep learning and ensemble models.

– Designed a two-stage classification system for 88 ancient Sinhala characters and their historical eras using deep learning and traditional ML.
– Applied transfer learning with MobileNetV2 and fine-tuned dense layers for era classification across 37 datasets.
– Extracted deep features using VGG19, ResNet50, InceptionV3, and InceptionResNetV2, followed by ensemble classification.
– Enhanced model robustness through advanced data augmentation including shearing, brightness shift, and zoom transformations.
– Tools & technologies used: *Python, TensorFlow, Keras, Scikit-learn, MobileNetV2, OpenCV, XGBoost*

•Brain Haemorrhage Detection *2023*

Developed a brain hemorrhage detection and localization system to identify intracranial hemorrhages.

– Three models were analyzed, their performance metrics were defined, and ResNet150 was chosen for its effectiveness in identifying intracranial hemorrhages.
– Six windowing methods were utilized, and the sigmoid BSB method was identified as the most effective.
– Preprocessing data from a CSV file, comparing with the SOP Instance UID, and then opening the corresponding DICOM image and labels.
– Tools & technologies used: *Python, Tensorflow, Numpy, Pandas*

•Space Ship Simulation *2024*

Creating a realistic 3D space ship simulation using the Unreal game engine.

– Developing advanced physics systems to simulate hyperspace dives, gravitational pulls, and navigation around celestial objects.
– Creating immersive scenes featuring black holes and massive stars to highlight the thrill of space exploration.
– Tools & technologies used: *Unreal Engine 5.4, Blueprint, C++, Blender*

•Third Person Military Game Design & Develop *2024*

Developed an immersive RPG shooting game with realistic 3D graphics using Unity and C#.

– Crafted lifelike enemy AI to challenge players with dynamic tactics and reactions, mirroring real combat scenarios.
– Immersed players in intense combat with customizable gear and captivating cutscenes and animations.
– Tools & technologies used: *Unity, C#, Blender*

•Flower Exchange LSEG Project *2023*

Created a Flower Exchange System enabling traders to trade flowers using C++.

- Enabling traders to seamlessly buy and sell flowers, with a focus on order processing, input validation, and real-time execution reporting.
- Tools & technologies used: *C++*

•Customizable Mood Lamp *2023*

Created a customizable mood lamp with remote control capabilities.

- Features include remote color and pattern control via a mobile app, real-time brightness adjustments, and scheduled mood changes.
- Tools & technologies used: *Arduino/C++, Altium, SolidWorks*

•Local Area Network Simulation *2023*

Implemented a backbone network for the university and the ENTC department.

- Configured the backbone network routing with OSPF and simulated it using Packet Tracer.
- Tools & technologies used: *Cisco Packet Tracer, OSPF*

•Virtual and Physical Autonomous Robot *2022 - 2023*

Designed two distinct implementations, both physical and virtual, to perform specific tasks.

- Tasks included: wall following, line maze solving, finding the shortest return path, escaping from a blind box, dotted line following, segmented wall following, and completing a broken bridge by placing boxes.
- Tools & technologies used: *Webots, SolidWorks, Arduino/C++*

•Linear Power Supply *2022 - 2023*

Designed a 0-15V adjustable linear power supply with minimal ripple and overcurrent protection.

- Tools & technologies used: *Altium, SolidWorks, Multisim*

•Medication Box Simulation *2023*

Designed a virtual medication box with a user-friendly interface for managing schedules and reminders.

- Tools & technologies used: *Arduino/C++, Wokwi, Node-Red*

•Water Level Detector *2022*

Developed a Bluetooth-enabled device for real-time water level monitoring and alerts.

- Included a companion mobile app for displaying detailed statistics and receiving notifications.
- Tools & technologies used: *Altium, SolidWorks, Arduino/C++*

Technical Skills and Interests

Programming Languages: Python, Golang, Java, JavaScript, C++, C#, PHP
Frameworks & Libraries: Spring Boot, React, Next.js, Flask, TensorFlow, PyTorch, Keras, OpenCV
Databases & Messaging: MySQL, PostgreSQL, MongoDB, RabbitMQ
Developer Tools & Platforms: Git, Docker, CI/CD (GitLab, ArgoCD), Jira, Postman, Kibana, Linux
Game & Simulation Engines: Unreal Engine 5, Unity, Webots
Areas of Interest: Software Engineering, High Performance Computing, AI/ML, Computer Vision, Game Development
Spoken Languages: Sinhala (Native), English

Positions of Responsibility

•Committee Member Electronic Club, University of Moratuwa *2022 - 2025*
•Department Facilitator EXMO23 Technological Exhibition, University of Moratuwa *2023*
•Events Pillar ACIES Gaming Competition, Mora Esports Club *2022*
•Committee Member Esports Club, University of Moratuwa *2021 - 2025*
•Basket Ball Vice Captain Richmond College, Galle *2017 - 2018*

Achievements

•Mahapola Higher Education (Merit) Scholarship For outstanding performance in A/L Examination *2020*
•The Best All-Round Student to Enter University Awarded by Richmond College, Galle *2020*
•Silver Medal, Sri Lankan Physics Olympiad Awarded by the Institute of Physics, Sri Lanka *2019*

References

Dr. Ranga Rodrigo
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