

Chathura Gunasekara

B.Sc. Engineering Honours

Computer Science and Engineering Undergraduate,

University of Moratuwa

GitHub · LinkedIn · Website ·

Email: chathura.20@cse.mrt.ac.lk

Mobile: +94 766652613



Publications

- **Real-time, Scalable and Extensible Object Filtering and Detection System Using Kinect Sensor and ROS2 Foxy implemented with C++** [↗](#)

[Semester 5 Capstone Project]

A real-time modular and lightweight system implemented in C++ based on ROS2 framework that can identify objects of basic shapes and colors and allow extensibility of functionality by incorporating more custom color and shape filters that can be activated or deactivated during runtime for optimized performance.

PROJECTS

- **Research on a High-Speed Hardware Accelerator for CRYSTALS-Kyber Post-Quantum Cryptography Algorithm**

[In Progress][Final Year Research Project]

A research project on implementing a hardware accelerator to efficiently execute complex mathematical calculations such as modular polynomial multiplication for CRYSTALS-Kyber **Post Quantum Cryptography** Algorithm.

- **Secure E-voting system** [↗](#)

A secure e-voting platform implemented based on security principles of blind signatures ensuring confidentiality, integrity, authenticity and untraceability requirements. Incorporates vote pooling, vote signing, signature validation and RSA based blind signature implementation. Implemented using flask and streamlit.

- **Bank Management System** [↗](#)

Semester 3 Project

Developed the Database, Database models, and controllers for a Bank Management system using MySQL, Node.JS, and Express. I contributed by co-creating a Boyce-Codd normalized database structure and implementing it using MySQL. Employed triggers and procedures to automate events in the database and to preserve ACID properties using transactions.

- **Email Client - CLI Email handling tool** [↗](#)

A CLI application implemented using JAVA which allows users to send emails to Official and Personal users. The application also stores details of all the sent mail and all the saved contacts of the users. The application automatically sends Birthday wishes to personal contacts on their birthdays.

- **Wordle Bot** [↗](#)

This is a Python based wordle bot designed using the principles of entropy in information theory to predict the most likely word.

EDUCATION

- **Undergraduate** (2021 - Present)
University of Moratuwa.
CGPA: 3.886
Dean's List Semesters: 2 (3.96), 3 (3.92), 4 (3.93), 6 (3.95), 7 (3.95)

INTERNSHIPS

- **WSO2** (Nov 2023 - May 2024)
Software Engineering Intern

CORE SKILLS

- | | |
|---|--|
| • Mathematics
Linear Algebra, Numerical Methods | • Machine Learning and Computer Vision
OpenCV, Pandas, Numpy, matplotlib |
| • Robotics and Automation
Transformations, ROS2 | • Embedded Networks and IoT
BLE, MQTT, Node-RED |
| • Embedded Systems Development
Arduino, ESP32, Raspberry PI, PlatfromIO | • Digital System Modelling (FPGA)
State Machines, K-Maps |
| • Software Development
TDD, Agile | • Programming Languages
C, C++, Python, Java |

SOFT SKILLS

- **Teamwork and Team Management**
Played a role in organizing Wainadee 2023 orchestral music event and also performed as the orchestra conductor
- **Time Management and Work Management**
All rounder managing academics, sports, music and clubs and societies
- **Leadership and Communication Skills**
Department representative, Speech Olympiad Semi Finalist

Honours and Awards

- | | |
|---|---|
| • ERU Symposium 2023
December 2023 | Among best 9 final paper submissions |
| • IEEEExtreme 16.0
March 2023 | All Island 15th position |
| • Bashaway FOSS Competition
Dec 2022 | 1st Runner's Up |
| • ABU RoboCon 2023
August 2023 | Represented Sri Lanka |
| • International Mathematics Competition 2022
August 2022 April 2022 | Represented University of Moratuwa |
| • University Colors Insignia
2022, 2023, 2024 | Mens TT Team Champions |

Certifications

- **Algorithmic Toolbox - UC San Diego**
June 2022 [Show Credential](#)
- **Pandas Certification**
September 2023 [Show Credential](#)
- **CS50x Course - Harvard University**
July 2021 [Show Credential](#)

Volunteering

- **Teaching Assistant**
CS2053 - Computer Architecture module
Computer Science and Engineering Department, University of Moratuwa
July 2023 - June 2024
- **Department Representative**
Semester 4, Semester 5, Semester 6
July 2023 - June 2024
- **STEAM Pillar - Technical Team Lead**
Sasnaka Sansada Foundation
March 2022 - March 2023
- **Treasurer - Classical Music Society, UOM**
October 2023 - December 2024
- **Vice Captain - Mens TT Team, UOM**
October 2023 - December 2024

References

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|---|--|--|
| • Prof. Chandana Gamage
Senior Lecturer
University of Moratuwa
+94 77 748 3643
chandag@cse.mrt.ac.lk | • Dr. S.J.Sooriyaarachchi
Senior Lecturer
University of Moratuwa
+94 77 669 1011
sulochanas@cse.mrt.ac.lk | • Dr. C. Hettiarachchi
Senior Lecturer
University of Moratuwa
+94 70 406 7543
chathuranga@cse.mrt.ac.lk |
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Declaration

- I hereby declare that the above mentioned information is correct up to my knowledge and I bear the responsibility for the correctness of the above mentioned.