

BUDVIN EDIPPULIARACHCHI

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EDUCATION

University of Moratuwa, Sri Lanka

January 2018 - July 2022

B.Sc. Engineering (Hons) - Specialized in Computer Science Engineering

CGPA : 4.12/4.2 [equivalently 3.97/4.0]

Ranked 1st among 128 students

Dean's Honors List in all semesters 1-8

The Cornell, Maryland, Max Planck Pre-doctoral Research School 2022 ↗

August 2022

August 1-6, 2022, Saarbrücken, Germany.

Selected to be in 80 participants out of 400+ applicants. A summer school with a week of lectures and panel sessions with researchers and faculty to get in touch with latest research trends and grad school application process.

Royal College, Colombo 07, Sri Lanka

August 2014 - August 2016

GCE Advanced Level - Physical Science Stream

Distinction passes for all subjects

Ranked 41 out of 28000+

RESEARCH INTERESTS

My research areas are in the fields of distributed computing and parallel computing, specifically the research related to performance engineering in distributed systems with high performance message passing interfaces. I am also interested in research related to programming languages and compilers.

RESEARCH EXPERIENCE

Accelerating k-mer Counting in a Commodity Cluster Environment

April 2021 - April 2022

- Supervisors : Prof. Sanath Jayasena, Gunavaran Brihadiswaran
- Research to explore the ability to utilize a commodity computer cluster to efficiently perform K-mer counting. Research is mainly based on searching for optimization strategies with MPI framework to obtain performance gains which can be scaled for a distributed environment.
- Technologies: MPI, C++

Software Profiling of ALICE O2

May 2022 - Present

- Supervisors : Dr. Latchezar Betev, Prof. Indika Perera, Dr. Gayashan Amarasinghe
- Profiling the new software suite ALICE O2 developed by CERN for their run 3. Research involves executing sample workflows, profiling them with memory and CPU profiling tools to identify potential bottlenecks.
- Technologies/Tools: C++, Perf, Intel Vtune

WORK EXPERIENCE

Mitra Innovation

October 2020 - March 2021

Software Engineering Intern

6 month software engineering internship covering AWS services, event driven software design, multi-tenant architecture, real-time data streaming, performance optimization in web apps and 3D animations with vector mathematics.

TEACHING EXPERIENCE

University of Moratuwa - Dept. of Computer Science Engineering

August 2021 - Present

Teaching Assistant

Modules : CS3062-Theory of Computing, CS2022-Data Structures and Algorithms, CS1033-Programming Fundamentals

Preparing assignments, weekly quizzes and assisting with weekly practicals and tutorials. Grading assignments and exams. Assist in conducting semester exams.

DEVELOPMENT PROJECTS

BioViz

A tool for learning and visualizing the inner workings of bioinformatics sequence alignment algorithms. Algorithms include global alignment, local alignment and multiple sequence alignment. The tool also includes an alignment game where users can test their ability to guess a best alignment.

Technologies : Python, Biopython, ReactJS

x86 Instruction Emulator

A tool to simulate a given list of instructions in x86 format. The tool decodes a string of hexadecimal coded instructions and emulates with correct arithmetic operations with several register and memory addressing modes.

Technologies : C++

Driver Management System

An internal system designed and developed for a delivery company to manage the records of drivers and vehicles. The system supports maintaining driver records, vehicle data records, vehicle maintenance tracking, on demand reports and handling inquiries.

Technologies : Python, Django, PostgreSQL

PUBLICATIONS

· **Edippuliarachchi B.**, Damika Gamlath, Ruchin Amaratunga, Gunavaran Brihadiswaran, and Sanath Jayasena. 2022. Quill: A Memory Efficient k-mer Counting and k-mer Querying Tool for Commodity Clusters. In Proceedings of the 14th International Conference on Bioinformatics and Biomedical Technology (ICBBT '22).

<https://doi.org/10.1145/3543377.3543389>

ACHIEVEMENTS & AWARDS

Gold Medal - Dept. of Computer Science and Engineering, Univ. of Moratuwa

2022

· Awarded for achieving the best overall GPA for computer science specialization.

Champions - Aces Coders v8.0

2020

· One of the largest competitive programming competitions in Sri Lanka which is organized by the University of Peradeniya.

Top 100 - IEEEExtreme

2021, 2020

· IEEEExtreme 14.0 (2021) - Global Rank 71st

· IEEEExtreme 13.0 (2020) - Global Rank 92nd

Champions - UoJ Coders

2019

· 12-hr competitive programming competition organized by the University of Jaffna.

1st Runners Up - RealHack

2019

· An overnight hackathon preceded by a competitive programming round, organized by the University of Kelaniya.

Finalists - Robofest

2019, 2018

· A robotic competition organized by SLIIT to build the fastest robot to solve the classic micromouse challenge.

Finalists - Sri Lanka Robotics Competition

2018

· The largest robotics competition in Sri Lanka organized by the University of Moratuwa.

Mahapola Higher Education Merit Scholarship -*2018*

- Awarded for outstanding performance in GCE A/L examination.

Bronze Medalist - Sri Lanka Mathematics Olympiad (Junior)*2008*

- Preliminary mathematics olympiad round held in Sri Lanka to qualify for the International Mathematics Olympiad competition.

SKILLS

Technical Fields	Algorithms, HPC, Distributed and Parallel Computing, Backend Development, AWS Cloud Native Development
Programming Languages	C, C++, Python, Java, SQL, JavaScript
Cloud Technologies	AWS
Languages	English (professional proficiency, TOEFL iBT score: 110/120), Sinhala (native proficiency)