







# BUDDHI PERERA

Computer Engineering Undergraduate  
Faculty of Engineering  
University of Peradeniya

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## INTERESTS

- Computer Architecture
- Embedded Systems
- Operating Systems
- Computer Networking and Security
- DevOps and System Administration
- Full-stack Development

## EDUCATION

### Bachelor of the Science of Engineering

2017 Nov – Present

**GPA: 3.9/4.0**

University of Peradeniya

Specializing in Computer Engineering

### G. C. E. Advanced Level

Trinity College, Kandy

2016

## TECHNICAL SKILLS

### Programming languages

C, Java, JavaScript, Python

### Hardware programming

Verilog HDL, Arduino

### Procedural programming

ARM Assembly

### Application development

HTML, CSS, ReactJS, Bootstrap, NodeJS, ExpressJS

### Database

MySQL, MongoDB

### Operating systems

Linux (Bash shell), Windows

### Version control

git

### 3D Modeling

Fusion360, AutoCAD

### Numerical computing packages

MATLAB

### Circuit design and simulation

Proteus, EasyEDA

### Computational Mathematics

Numerical methods, Discrete mathematics, Statistics and Probability

## PROJECTS <https://github.com/buddhiheshan>

### RV32IM Pipeline Implementation *Group Project*

2021 – Present

Design and implementation of a 5 stage pipeline processor to support RV32IM RISC-V ISA. This was implemented using behavioral modeling in Verilog HDL. This processor contains pipeline processor hardware units, a memory hierarchy (data cache, instruction cache and main memory), a forwarding unit and an assembler.

*Technologies : Verilog HDL, C*

*Contribution : Designing the data-path, Implementation of the processor*

### MyStore *Group Project*

2021 – Present

A platform for a small and medium scale business to manage their inventory and to sell their products online. MyStore includes a web application for the customers to purchase products and a desktop application for the shop owner to manage the inventory and to sell the products.

*Technologies : NodeJS, MySQL*

*Contribution : System Design, Implementation of the back-end*

### WaiterBot System *Group Project*

2020 - Present

A system of waiter robots and a smart ordering system for a restaurant. WaiterBot system includes waiter robots for delivery, mobile application for placing orders, web application and desktop application for management of the restaurant.

*Technologies : Arduino with ESP32, ReactJS, MQTT, ElectronJS, Fusion360*

*Contribution : Hardware design and implementation, Web and desktop applications*

<b>Single Cycle CPU Individual Project</b>	2020
Design and implementation of a 8-bit single cycle CPU to support a custom ISA. This processor contains basic processor hardware units, a memory hierarchy including caching and main memory and an assembler. This was implemented using behavioral modeling in Verilog HDL.	
<i>Technologies : Verilog HDL, C</i>	
<i>Contribution : Designing the data-path, Implementation of the processor</i>	
<b>Key Management System Group Project</b>	2019
A system to manage key lending process in an organization. This system includes a web application connected to a MySQL database for the person in charge of the keys to keep track of the keys.	
<i>Technologies : MySQL</i>	
<i>Contribution : Database design, Database implementation</i>	
<b>Compost Quality Manager Group Project</b>	2019
This is a real-time compost quality monitoring system. This system includes hardware sensor nodes to measure temperature and moisture of compost piles, a data receiving node for collection of data from sensor nodes and a web application to display the collected information real-time.	
<i>Technologies : Arduino, MQTT</i>	
<i>Contribution : Hardware implementation</i>	

## MINI PROJECTS

<b>Fractals</b> : Multi-threaded application for fractal visualization using Java	2020
<b>Auction Server</b> : Multi-threaded socket server for stock auctions using Java	2020
<b>8-bit ALU</b> : Gate level design and implementation of a simple ALU	2019
<b>Pathfinder</b> : Line following robot using basic electronic components	2018
<b>Memory game</b> : A simple memory game using Arduino	2018

## CERTIFICATIONS, COURSES AND TRAINING PROGRAMS

<b>Training program on Linux system administration and devops engineering</b>	Ongoing
• Offered by : WSO2	
<b>Full-stack web development with React Specialization</b>	
• Offered by : Coursera   The Hong Kong University of Science and Technology	
<b>Fundamentals of Computer Networking and Security Specialization</b>	
• Offered by : Coursera   University of Colorado Systems	
<b>Introduction to Git and GitHub</b>	
• Offered by : Coursera   Google	

## EXPERIENCE

### **Volunteer Instructor (Teaching Assistant)**

Department of Computer Engineering, University of Peradeniya

- Computer communication Networks
- Computer Architecture

2021 June - Present  
2020 - 2021

## ACHIEVEMENTS AND COMPETITIONS

### **ACES Hackathon Group Project**

Winner in the Agriculture and Irrigation Category

Project : Compost Quality Manager

2019

## **EXTRA-CURRICULAR ACTIVITIES**

### **Member of the Rotaract Club of Katugastota Region**

- Vice-president
- Treasurer

*2021 - Present  
2020 - 2021*

### **Active member of the Association for Computer Engineering Students at University of Peradeniya**

### **National School Games Colors for Athletics**

### **Trinity College Colors for Athletics**

### **School Officer at Trinity College Kandy**

*2015-2016*

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## **REFEREES**

### **Prof. Roshan G. Ragel**

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