Theeshiikan (Theesik) A Shanmuganathan

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Education

B.Eng. in Computer Engineering *Expected 2027*
Toronto Metropolitan University, Toronto, ON - Dean's List

- **Relevant Coursework:** Algorithms and Data Structures (C), Digital Systems (FPGA/VHDL), Object-Oriented Engineering Analysis and Design (Java), Electronic Circuits (Analog Design), Microprocessors (Assembly)

Professional Experience

Lead Code Instructor, Code Ninjas *Aurora, Canada - 04/2023 to Present*

- Helped develop over **500+** coding projects in **JavaScript, Python, Scratch and Makecode** guiding **100+ students** in creating games and applications.
- Led a LEGO robotics camp, teaching engineering concepts and coding robots in **JavaScript**.
- **Collaborated with large teams**, ensuring effective communication.
- Planned and hosted **3+** Hackathons, open houses, and events to engage the community.

MetEng Competition *Toronto Metropolitan University - 2024*

- **Collaborated in teams of 4** to create an **efficient software application** with a real-world impact.
- Analyzed and processed **1000+ job postings** to tailor an enjoyable user experience.
- Built a **Python** job-matching platform using data analytics for disadvantaged job-seekers.

Projects

MoneyFlow Tracker — JavaFX, Java and CSS

- Developed an **interactive GUI** for a banking system with multiple screens and logins.
- Implemented admin functionality for adding/removing customers.
- Facilitated **50+ customer accounts** with transaction history, balance updates, and withdrawal/deposit functions.
- Used **UML diagrams** to carefully plan and document the project
- Personal Takeaway: Improved problem-solving skills and adaptability by learning JavaFX.

General-Purpose Processor Design — Quartus, FPGA and VHDL

- Designed and implemented a general-purpose processor on a **FPGA**, created a processor using **latches** and **decoders** for simple tasks.
- Achieved stable functionality with **20+ successfully executed test cases** for simple arithmetic and logic tasks.
- Personal Takeaway: Gained technical growth and collaboration skills.

Multistage Amplifier Design — Multisim

- Designed a **2-stage amplifier** using **BJTs** for specific gain requirements.
- Simulated performance in Multisim, refining the circuit through **10+ test iterations** for optimal efficiency.
- Personal Takeaway: Developed focus on precision and optimization through multiple testing stages.

StatsCan Diabetes Analyzer — C

- Built a software that fully analyzed a file with data of **200+** cities in Canada.
- Created functions with **nested loops** to print out calculated statistics.
- Personal Takeaway: Strengthened my understanding of fundamental coding practices that can be implemented in any programming language.

Micro-bot Path Tracing — Assembly

- Built a software that utilizes a **Microprocessor** on a Micro-bot.
- Improved accuracy and responsiveness through algorithm optimizations after **5+ testing rounds**.
- Personal Takeaway: Strengthened low-level programming skills applicable across various systems.

Technical Skills

- **Programming Languages:** VHDL, Python, C/C++, HTML, Java, JavaScript, Assembly
- **Soft Skills:** Problem-solving, team collaboration, strong communication
- **Tools & Technologies:** Quartus, MATLAB, Git, Oscilloscopes, Logic Analyzers, and MOSFETs
- **Concepts:** Digital Logic Design, Circuit Design/Analysis, Verification Methodologies, FPGA Design