# Paranikson Rudda

437-533-6128 | prudda@uwaterloo.ca | www.linkedin.com/in/paranikson-rudda | https://github.com/Paranikson

## Technical Skills

**Programming Languages**: C++, Python, SQL, HTML, JavaScript
**Software & Tools**: GitLab, Git, AutoCAD, SolidWorks, Microsoft Office, Arduino, VS Code, Jupyter, Next.js, TypeScript, React.js
**Languages**: English (Fluent), Tamil (Fluent), French (Proficient)

## Experience

**Firmware Developer** Oct. 2025 – Present
*University of Waterloo Midnight Sun* *Waterloo, ON*

- Develop embedded **C/C++ firmware** for ECUs managing vehicle communication via **CAN/LIN** networks and sensor interfaces for real time data acquisition and control.
- Implement **signal simulation, HIL testing,** and **fault diagnostics** to validate control board performance and ensure system reliability, reducing per-board validation time by **35%**.
- Assisted with hardware integration by validating subsystems and debugging early firmware/hardware issues.

**3D Printing Technician** Jun. 2025 – Sep. 2025
*Clavius3D* *Brampton, ON*

- Designed and revised **30+** parts utilizing **SolidWorks** and **Fusion 360**, reducing post-processing time by **10-15%** through fillet optimization.
- Prepared CAD models for manufacturing by configuring **slicing parameters**, **tolerance compensation**, **support generation**, and **material-specific print settings** to ensure dimensional accuracy and reliable print outcomes.
- Operated, calibrated, and maintained **8–12 FDM** and **resin 3D printers**, performing routine leveling and hardware troubleshooting to minimize downtime and print failures.

**Soccer Coach/Referee** Sep. 2022 – Sep. 2024
*Peel Panther Soccer Club* *Brampton, ON*

- Coached **20–30** youth players, ages **6 to 14**, focusing on skill development and teamwork.
- Refereed **30+** competitive league matches per season, enforcing official rules and maintaining fair gameplay.
- Led **2–3** training sessions per week, planning drills and games to improve technical ability and game awareness.

## Projects

**Trip Expense Splitter** | *HTML, JavaScript, CSS*

- Designed and built a client-side web application to manage shared expenses across multiple trips and sessions.
- Built dynamic UI components for trip management, participant configuration, and real time recalculation using **vanilla JavaScript** and **DOM manipulation.**
- Stored trip, participant, and expense data client-side using **localStorage** for session persistence.

**Autonomous Colour Sorter Robot** | *C++*

- Programmed in **C++** using **loops, conditionals**, and **functions** to control autonomous colour sorting behavior.
- Integrated **optical** and **distance sensors** to detect and classify objects, triggering sorting actions with **90%+ accuracy** under controlled conditions.
- Added **automatic start/stop logic** and basic error handling safeguards, allowing the robot to operate continuously for **10+** minutes without manual intervention.

**Custom Speaker** | *C++, Circuitry, Audio Processing*

- Developed an embedded audio synthesizer and speaker system using a **Seeduino Nano** and custom analog audio circuitry.
- Implemented **C++ firmware** for sound synthesis, including waveform generation and basic sequencing logic.
- Designed and tested speaker cabinets, evaluating noise characteristics and signal quality using an **oscilloscope**.

## Education

**University of Waterloo** Waterloo, ON
*Bachelor of Applied Science in Mechatronic Engineering* *Sep. 2025 – Apr. 2030*

- **Relevant Coursework:** Digital Computation, Algorithms and Data Structures, Circuits, Mechatronics Engineering