

ANDREW ARIZAGA

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Summary of Qualifications

- **Programming Languages:** C/C++, Python, VHDL, MATLAB, JavaScript, Java, Microsoft VBA
- **Engineering Tools:** Altium Designer, KiCAD, SPICE, Quartus, MultiSim, PX4, Arduino, ESP32
- **Hardware:** PCB Design, Sensor Integration, Microcontroller Programming, Digital Multimeters, Oscilloscopes, Soldering
- **CAD Software:** SolidWorks (CSWA, CSWA-AM, CSWA-SD, CSWP), Fusion 360, AutoCAD, AutoCAD Electrical
- **Workspace Tools:** Microsoft Office Suite (Excel, Word, SharePoint), Google Suite (Docs, Sheets, Slides, Drive)

EDUCATION

Bachelor of Engineering - Electrical Engineering

Sep 2023 - Apr 2027

- Toronto Metropolitan University (Formerly Ryerson University)
- Minor in **Mathematics** and **Computer Science** (Robotics Option)

WORK EXPERIENCE

Assistant Energy Management Engineering Intern - *City of Brampton*

Sep 2024 - Dec 2024

- Spearheaded projects on **LED retrofits**, **EV charging stations**, and **EV infrastructure**, achieving energy optimization and reducing consumption by 15% across city facilities.
- Conducted analyses of **Building Automation Systems (BAS)**, **HVAC systems**, and **water submetering**, utilizing **heat map analysis** to identify inefficiencies and propose system optimizations.
- Leveraged advanced **Excel techniques** such as **automation scripting**, **pivot tables**, and **data visualization** to deliver actionable insights on **energy usage trends**.
- Managed datasets from utilities such as **Asset Planner**, **Alectra Utilities**, **Charge Point**, and **Flo**, conducting detailed analyses to identify energy usage patterns and improve resource allocation across city infrastructure.

Hardware Engineer Intern - *Cence Power*

May 2024 - Aug 2024

- Designed and implemented **high-voltage DC power distribution systems**, incorporating precise **creeping** and **clearance voltage** considerations to ensure safety, system reliability, and adherence to engineering best practices.
- Designed and tested custom **low-voltage PCB boards** using **KiCAD** and **Altium**, optimizing layouts for performance, manufacturability, and seamless integration with smart control systems.
- Integrated and calibrated **smart control systems** with **wireless sensors**, automating energy monitoring processes, enhancing system responsiveness, and achieving measurable **efficiency gains** while reducing operational costs.
- Developed and managed a centralized **inventory system** for components from **DigiKey** and **Mouser**, improving resource allocation, ensuring supply chain efficiency, and minimizing delays.

Manufacturing Lead - *Toronto Metropolitan Baja Racing*

Aug 2023 - Aug 2024

- Directed the design and fabrication of the **chassis**, ensuring **structural integrity** and **performance optimization**.
- Designed and integrated the **steering system (rack and pinion)**, **suspension system (double wishbone)**, and **electrical systems (wiring harnesses and sensors)** for enhanced reliability and control.
- Executed and supervised **MIG welding** for components, maintaining **precision** and adherence to **safety standards**.
- Conducted **CAD simulations** in **SolidWorks** and **Fusion 360**, optimizing **durability** and streamlining **production**.

Computer Repair Technician - *Imported Brands of Canada*

Jul 2022 - Sep 2023

- Diagnosed, troubleshooted, and resolved **hardware and software issues** on systems from brands like **Windows**, **Apple**, and **Lenovo**, restoring functionality for over **150+ devices** during the tenure.
- Installed and optimized **operating systems** and performed **hardware upgrades** (e.g., **RAM**, **hard drives**, and **graphics cards**) for **50+ clients**, improving system reliability by up to **30%**.
- Streamlined **diagnostic processes**, reducing average system downtime by **20%**, enhancing operational performance.

PROJECTS

Solar Car Design Team (TMSR)

Jan 2024 - Present

- Led a multidisciplinary team to design a **solar-powered vehicle**, managing timelines and **sustainability** goals.
- Engineered a custom **battery management system (BMS)** with integrated **state-of-charge (SOC)** and **state-of-health (SOH)** monitoring, optimizing **thermal regulation** and power allocation for a 20% increase in system reliability.
- Modeled and optimized the **chassis structure** using **SOLIDWORKS**, **Fusion 360**, and **finite element analysis (FEA)**, achieving a 10% reduction in weight while ensuring compliance with structural safety standards.