CHRISTOPHER AL-RAHI

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EDUCATION

University of Ottawa   Ottawa, ON
BASc. in Mechanical Engineering | BSc. in Computing Technology (Co-op)   September 2022 - April 2027

EXPERIENCE

Curtiss-Wright Defense   Ottawa, ON
Mechanical Engineering Intern   September 2025 - December 2025

- Assembled and validated eight ruggedized electronic chassis for defense systems, ensuring compliance with military-grade reliability and quality standards.
- Performed environmental and thermal reliability testing on nine conduction-cooled products (4000+ insertions, 80+ thermal cycles) and reported product qualification and design verification.
- Conducted Flotherm thermal simulations to evaluate liquid-cooled hardware performance and guide mechanical design optimization and heat dissipation improvements.

CanmetENERGY - Alternative Energies Laboratory   Ottawa, ON
Research Assistant   January 2025 - April 2025

- Designed four ventilation and mechanical CAD layouts across three projects, reducing pressure loss and optimizing system efficiency.
- Automated heat pump performance analysis with VBA, accelerating the process by 90%.
- Heat and pressure loss calculations performed to refine mechanical design and improve system reliability.

CanmetENERGY - Renewable Heat & Power   Ottawa, ON
Research Assistant   May 2025 - August 2025

- Conducted root-cause analysis and restored the motion of a solar actuator system from $\pm15°$ to $\pm40°$, improving the tracking control and reliability of the system through mechanical redesign.
- Designed and implemented a height-adjustable shielded sensor system, increasing live temperature measurement accuracy by over 30%.
- Designed and built a compact, portable ventilation prototype for solar thermal testing, optimizing airflow and integration within tight spatial constraints.

PROJECTS

Hot Tub Heater Element Repair *Failure Analysis*
Performed a structured fault analysis on a malfunctioning hot tub heating system, isolating electrical failures through diagnostic testing and circuit inspection. Researched and sourced compatible components, then removed and reinstalled the heater element within the piping assembly to restore full functionality.

Beer Goggles - Specific Gravity Measuring Device *Arduino, Python, SolidWorks*
Led a 3-person team to design and prototype a sensor-based measurement system (±0.1 accuracy) with ultrasonic and load-cell integration; completed 3 iterative design cycles for calibration and validation.

Mobilitray - Posterior Walker Tray *SolidWorks, 3D Printing*
Modeled and 3D printed an ergonomic, load-bearing tray system using SolidWorks; validated structural integrity through prototype testing.

AWARDS

Dean's Honour List | Recognition of Excellence   Faculty of Engineering
Awarded for maintaining a grade point average of 8.5 or better.   September 2022 | September 2024

SKILLS

Mechanical & CAD:	SolidWorks, AutoCAD, ANSYS, 3D Printing, FEA, Creo, GD&T
Embedded systems & Hardware:	Arduino, LabVIEW, DAQ, Sensors & Actuators, Control Systems
Thermal & Energy Systems:	P&ID, HVAC Design, Pressure & Heat Load Calculations, Flotherm
Testing & Analysis:	Reliability Testing, Vibration Management, Environmental Qualification
Programming & Automation:	Python, VBA, C++, Arduino

REFERENCES AVAILABLE ON REQUEST