

Ihab Afkir

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SUMMARY OF QUALIFICATIONS

- Mechanical Engineering student with practical experience in mechanical systems, HVAC fundamentals, and 3D CAD modelling .
- Skilled in tolerancing, stress analysis, and thermal/CFD analysis.
- Familiar with REVIT for mechanical layouts and coordination.
- Experienced with embedded systems , sensors, and control logic integration.
- Strong problem-solving, technical communication and documentation abilities.
- Fluent in French and English; intermediate in Arabic and German.

EDUCATION

BaSc Mechanical Engineering and BSc Computing Technology

2021–2026

University of Ottawa, ON

- Relevant coursework: Thermodynamics, Heat Transfer, Fluid Mechanics, Machine Design, Energy Building Analysis, Data Structures and Algorithms, Advanced C++, Computer Architecture.

APPLIED PROJECTS

Hybrid Refrigerator System (Capstone Project)

- Designed a hybrid refrigeration system leveraging outdoor winter temperatures to reduce compressor load, improve heat-rejection efficiency and lower annual energy consumption.
- Performed thermal modelling, airflow sizing and condenser/evaporator optimization using Ontario Building Code guidelines, ASHRAE and ISO standards; produced CAD layouts and technical documentation for year-round energy-efficient operation.

10:1 Vertical-to-Horizontal Speed Reducer

- Performed mechanical and failure analysis for gear and shaft design, including material selection using AISI standards, stress evaluation, and safety factor validation.
- Sized gears, shafts, and bearings based on loading conditions; established tolerances and fits and developed a lubrication and reliability strategy for long-term operation.

Custom CPU & Assembly Pipeline

- Designed and implemented a custom CPU architecture on an Altera FPGA, including Datapath, control unit, ALU operations, memory access logic and register-file integration.
- Developed, tested and debugged low-level programs in ARM/Thumb and custom assembly; completed multiple labs involving pipelines, clock cycles, interrupts, and hardware-level performance validation.

Personal Portfolio Website : Full Front-End Build

- Designed, developed and deployed a fully custom portfolio website using Astro, JavaScript and CSS, with a responsive UI and modular component architecture.
- Built entirely from scratch and optimized for performance and SEO; showcases engineering projects, CAD models, technical documentation and prototypes.

ENGINEERING TEAM EXPERIENCE

Formula uOttawa: Mechanical Sub team (Braking & Thermal Analysis)

- Designed detailed 3D CAD models of the brake disc using SolidWorks, considering geometry, weight constraints and manufacturability.
- Performed structural FEA and thermal simulations in ANSYS to evaluate stress distribution, temperature rise, heat dissipation and safety factors under braking loads.

TECHNICAL SKILLS

Mechanical Design: SolidWorks, tolerance, AISI standard, machine design, CAD assemblies.

Thermal/HVAC: CFD(Star-CCM+), Heat transfer (Ansys), load estimation, refrigeration, ASHRAE and Building Code.

Computing/Embedded Systems: FPGA (Altera), CPU/Datapath design, ARM/Thumb assembly, Arduino/ESP32, sensors & control logic.

Programming: Python, MATLAB, C/C++, JavaScript, Astro, CSS, Golang.

Manufacturing: 3D printing, machining, TIG welding, soldering.

WORK EXPERIENCE

Industrial Engineering Intern

May–Aug 2025

Renault, Tangier, Morocco

- Optimized an industrial conveyor chain process to increase line throughput without interrupting production.
- Performed mechanical calculations and ANSYS simulations to validate safe operating limits and system reliability.
- Worked closely with maintenance and industrial engineering teams during on-site implementation.

Event Manager

May–Aug 2025

Sukoon.raw, Tangier, Morocco

- Led logistics and operational planning for a large-scale urban event with over 700 attendees.
- Negotiated with artists, venues, and suppliers to secure performances and strategic partnerships.
- Managed event promotion through social media and local outreach, contributing to a sold-out event.
- Resolved last-minute operational issues on-site and ensured smooth execution under time constraints.

Landscape Technician

2023–2024

Badaan Holding, Gatineau, Canada

- Coordinated deliveries and organized tools, equipment, and inventory for daily operations.
- Assisted in renovation and maintenance tasks while following safety and efficiency standards.
- Performed physically demanding outdoor work, demonstrating reliability, endurance, and teamwork.

CERTIFICATION AND TRAINING

- Autodesk Certified Professional – Revit for Mechanical Design (In progress)
- Certified SOLIDWORKS Associate (CSWA)
- TIG Welding Certification (CEED)
- WHMIS – Workplace Hazardous Materials Information System
- Industrial Machine Safety Training (CEED)