ABDUL REHMAN ABDUL HAMEED

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EDUCATION

University of Calgary - Calgary, Alberta Expected 2028
Bachelor of Science, Mechanical Engineering - Schulich School of Engineering
Bachelor of Commerce - Haskayne School of Business

TECHNICAL SKILLS

Thermal & Fluid Systems: Thermodynamics, heat transfer, fluid mechanics, pump selection, fluid system design, tubing layout, solar thermal and renewable energy systems

Simulation & Engineering Analysis: ANSYS Fluent, CFD, thermal and flow simulation, energy feasibility analysis, Excel, MATLAB and Python

Instrumentation & Data: Type K thermocouples, MAX31855, Arduino Mega 2560, microSD logging, C firmware, sensor integration, data acquisition

CAD & Engineering Design: SolidWorks, AutoCAD, Fusion 360, 3D modeling, technical drawings, GD&T, tolerance stack-up, design for assembly

Fabrication, Field & Project: Drill press, arbor press, hand tools, soldering, prototype assembly, outdoor testing, troubleshooting, component sourcing and scheduling

ENGINEERING & RESEARCH EXPERIENCE

Undergraduate Research Assistant 2026
Dr. Roes Budiman, Schulich School of Engineering, University of Calgary
- Designed a solar thermal collector water-circulation system, including pump selection, tubing layout and flow paths; used ANSYS Fluent to evaluate flow and thermal behaviour.
- Specified and sourced Type K thermocouples, MAX31855 amplifiers, Arduino Mega 2560 and microSD logging hardware within a $500 budget, supporting stable multichannel data acquisition.
- Conducted 3+ hour outdoor field tests with acetone circulation to collect boiler temperature and heat-retention data.
- Developed C firmware for CSV data logging and troubleshot sensor, wiring and breadboard faults, including power integration for planned battery operation.

Frame Team Member 2026
Autonomous Underwater Vehicle (AUV) Student Team, University of Calgary
- Collaborated with electrical, software and controls subteams on structural layouts for component placement, thruster mounting and watertight vessel packaging.
- Produced dimensioned CAD drawings defining tolerances, fits and component interfaces for fabrication and assembly.
- Supported frame fabrication and integration with exposure to lathe operations, welding and 3D printing.

ENERGY & SYSTEMS PROJECTS

Solid Carbon Feedstock-to-Carbon Monoxide Gas - Independent Feasibility Study (In Progress) - Assessed thermochemical conversion pathways, energy input, temperature control, gas formation, safety constraints and process feasibility.

Snow-to-Electricity - Independent Cold-Climate Feasibility Study (In Progress) - Evaluated snow recovery, melting and storage, meltwater flow, micro-hydropower, phase-change behaviour, thermal gradients and feasibility limitations.

Autonomous Solar Tracking Mechanism - Independent Design Concept - Developed SolidWorks mechanism design and explored sensor feedback, Arduino controls and motorized panel orientation.

Detachable Arbor Press - Design, Drawing and Fabrication - Completed three SolidWorks revisions, dimensioned drawings and tolerance stack-ups; fabricated components using shop tools and checked assembly fit.

ADDITIONAL EXPERIENCE & ACTIVITIES

Security Operations Centre Officer 2023-2026
Commissionaires, Calgary, AB
- Monitor GeoTab, C-CURE, SpyPoint and Spot Trace alerts; investigate events, document findings and escalate incidents according to established procedures.
- Respond to security inquiries and access-control requests; coordinate tenant and employee follow-up communications.

Operations & Client Support 2025-2026
Intense Driving Academy, Calgary, AB
- Coordinate scheduling, communications and daily operations for 80+ clients, with a reported 98% satisfaction rate; resolve scheduling conflicts.
- Maintain client records, manage instructor availability and coordinate last-minute scheduling changes.

Reel Lead & Communications 2026
Project90
- Planned and produced short-form content and reels from concept through filming, editing, review and publication for team outreach.
- Coordinated requirements, deadlines and revisions with team members.

Volunteer 2026
Calgary Catholic Immigration Society & Between Friends
- Supported 40+ newcomers per session with intake, documentation and referrals in English, Hindi, Urdu and Arabic.
- Helped participants navigate program information and coordinated with staff and volunteers during high-volume sessions.