

Nicholas Sabry

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OBJECTIVE STATEMENT

Pursuing a career in mechanical or manufacturing engineering for product development. As a Ph.D. candidate in Mechanical Engineering, this pursuit is driven by a commitment to address challenging problems and contribute innovative solutions. The goal is to transition the comprehensive skill set acquired through industry-based academic research into applied industry solutions. This skill set encompasses proficiency in multiple programming languages, technical communication and writing, CAD/CAM software, and a combination of analysis methods and machining techniques. These competencies are aimed at solving engineering problems across various fields, bringing a principle's first view to evolving areas of product development.

EXPERIENCE

- Research Engineer - High Performance Powertrain Materials Laboratory (HPPM)* May '20 — Present
Australian Nuclear Science and Technology (ANSTO) Research for Neutron Experiments Aug.'23 — Jan.'24
- Advanced Friction Stir Welding (FSW) residual stress research with neutron diffraction providing weld sequence insights.
 - Systematically collected data on FSW speed parameters' impact on residual stress, microstructure, and aluminum (Al) fusion.
- The Minerals, Metals & Materials Society (TMS) Annual Meeting & Exhibition* Mar.'23
- Delivered two talks at TMS on FSW and residual stress to 50+ senior engineers, securing referrals and networking opportunities by leveraging professionally crafted animations to elucidate complex topics and sustain audience engagement.
- Nemak R&D and Oak Ridge National Lab (ORNL) Collaboration* May '20 — Aug.'22
- Facilitated an international liaison between Nemak R&D, ORNL, and Alabama production facility, leading to a strategic 40-page report that outlined methods to reduce distortion and enhance production efficiency on the Jeep Rubicon hybrid battery tray.
 - Report based on empirical evidence and data analysis collected at ORNL's user facility, driving decisions and recommendations.
 - Garnered supporting material insights through tensile testing, SEM, EBSD, optical imaging, and diffraction analyses methods.
- Engineering Intern - Tolko Industries Production Enhancement* Sep.'19 — Jun.'20
- Collaborated in a team, enhancing Tolko Industries' production processes, tripling fruit bin output to 90,000 annually.
 - Led motion study analysis, pinpointing improvements for safety and efficiency in manufacturing operations.
 - Redesigned final assembly, boosting operational efficiency, reducing production time, and cutting space requirements.
- Engineering Intern - Internal Combustion (IC) Engine Fitness-for-Service Research* May '18 — Aug.'18
- Completed Al alloy characterization at Lund Institute, evaluating next gen IC engine material by tensile and fatigue analysis.
 - Employed fractography methods; collected precipitation-strengthened Al alloy fracture data; defined ductility and toughness.
 - Conducted acoustic emission testing with tensile tests, aiding in understanding deformation in pre-elastic limit.
- Engineering Intern - Battery Innovation Project Assistant* Sep.'18 — Apr.'18
- Panasonic GA and Samsung 30Q battery cells cycling to measure performance degradation under varied usage conditions.
 - Analyzed data for patterns of performance loss to create efficient charging technologies to extend battery life.

EDUCATION

- Ph. D. in Mechanical Engineering - University of British Columbia* May '20 — Apr.'24 (Expected Completion)
- Diss. "Stress Characterization for Friction-Stir-Welded Hybrid Electric Battery Trays with Application of Neutron Diffraction"
 - Teaching Assistant: Managed and coordinated a cohort of 140 students (provided TA hours, exam reviews, and grading).
- BASc in Mechanical Engineering - University of British Columbia* Sep.'16 — Apr.'20
- GPA: 3.9 / 4.0 with Distinction.
 - Courses: Applied Machine Learning, Alternative Energy Systems, High Power Electronic Converters for Power System Applications, Microelectromechanical Systems, Robot Modelling and Control, and Electric Circuits and Power.

SKILLS

MATLAB, SolidWorks, SEM+EBSD Analysis, Lathe/Mill/Waterjet/Welding/3D Printing, Proficient Presenter and Communicator

PROJECTS

Arduino Bluetooth Drone

3D Printed, PID controlled, USB Host Shield connection interface, PS4 controller integration, 6050 MPU Gyro stabilization.

Cast Plates Processing

Machined steel dies, rapid hot plate extraction, minimized turbulent flow, hot mold re-entry for successive plate castings.