Nicholas Sabry

(Materials Science Researcher and Mechanical Engineer)
nicholas@sabry-engineering.com | 778-581-6850 | portfolio.sabry-engineering.com | Academic CV | LinkedIn

Objective Statement

As a Ph.D. candidate in Mechanical Engineering at The University of British Columbia, I have cultivated a wide range of transferable skills through my research in residual stress in Friction Stir Welding (FSW). My academic journey, marked by collaborations with globally recognized institutions such as the Australian Nuclear Science and Technology Organization (ANSTO) and presentations at The Minerals, Metals & Materials Society (TMS), has not only enriched my specialized knowledge but also sharpened my communication skills, making them applicable in various manufacturing and engineering contexts. Collaborative projects with Nemak R&D and Oak Ridge National Laboratory (ORNL) have further refined my ability to innovate and adapt to diverse environments. With proficiency in multiple coding languages and CAD/CAM software, coupled with a comprehensive grasp of diverse analysis methods and machining techniques, I am well-equipped to significantly contribute to engineering projects, particularly those at the intersection of advanced manufacturing processes and material science.

Experience

Research Engineer - **ANSTO Nuclear Research Experiments** Aug. '23— Present

- Advanced 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.

Research Engineer - **TMS Annual Meeting & Exhibition** Mar. '23

- Delivered two key TMS presentations on FSW and residual stress to 50+ senior engineers, securing referrals and networking opportunities through commanding presentation skills.

Research Engineer - **Nemak R&D and ORNL Collaboration** May '20 — Aug. '22

- Facilitated an international liaison between Nemak Canada, Oak Ridge Lab, and Nemak Alabama, streamlining data collection and analysis, presentation, and internal report exchanges.
- Devised stress characterization scan plans for hybrid vehicle trays, optimizing manufacturing and minimizing welding distortions.
- Garnered material insights through tensile testing, SEM, optical imaging, and X-ray diffraction analyses.

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 ergonomic and 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 - **Lund IC Engine Materials Experiments** May '18 — Aug. '18

- Completed Al alloy characterization at Lund Institute, evaluating next gen IC engine material by tensile and fatigue analysis.
- Employed fractography techniques, collected precipitation-strengthened Al alloy fracture data, defining ductility and toughness.
- Conducted acoustic emission testing, revealing deformation mechanisms in tensile tests, aiding pre-elastic limit understanding.

Education

Ph. D. in Mechanical Engineering - **University of British Columbia** May '20 — Present

- 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, Proficient 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 re-entry into furnace for successive plate castings.