

Alex Zhang

825-365-7581 | alexzhang1524@gmail.com | [linkedin.com/in/alexzhang1524/](https://www.linkedin.com/in/alexzhang1524/) Dino's Usports Varsity Rowing Athlete

EDUCATION

University of Calgary

Bachelor of Applied Science in Mechanical Engineering

Calgary, AB

Sept. 2023 – May 2028

EXPERIENCE

Vehicle Production Engineering Intern

Feb. 2025 – Aug. 2025

Mercedes-Benz

Vance, AL

- Designed, engineered and fabricated a V167 striker-liftgate alignment jig using Siemens NX and Smaragd CAD data. Applied GD&T, tolerance stack-up analysis, and rapid prototyping to reduce tooling cost from \$10,000 to \$100 (99% reduction) while improving gap and flush alignment by 15%.
- Performed quality inspections and root cause analysis through dimensional inspections, gap & flush measurements, NVH evaluations, and buildability testing on liftgate, bumper, and tail lamp assemblies, ensuring compliance with Mercedes-Benz quality standards during MOPF vehicle ramp-up.
- Co-developed AI-powered manufacturing inspection systems for PVC primer and underbody fastener detection by configuring industrial cameras, PLCs, and edge devices, validating computer vision models using 2,500+ annotated production images, and developing the Node-RED pipeline, SQL database, and Power BI dashboards to monitor quality KPIs and drive continuous process improvement.
- Developed a metrology analysis tool using python to automate Type I Gauge R&R, statistical variation, and Cp/Cpk calculations, enabling engineers to evaluate tooling repeatability, measurement system reliability, and process capability through visualizations and standardized statistical analysis.

Substation Engineering Intern

May 2026 – Present

Iconic Power Systems

Calgary, AB

- Performed quality assurance inspections on transformers, tap changers, protection relays, and switching equipment during substation construction and commissioning, verifying compliance with engineering specifications, operational requirements, and utility quality standards while documenting deficiencies for corrective action.
- Developed a hybrid semantic search application in Python using semantic search, BM25, and fuzzy matching algorithms to enable intelligent querying of the Engineering MIC List, improving information retrieval accuracy by 80% and reducing manual engineering effort.
- Developed Power Apps and Power BI solutions connected to SharePoint and Excel data sources, digitizing engineering workflows while transforming project data into visualization dashboards for cost forecasting, invoicing, lessons learned, meeting tracking, and KPI monitoring.

Mechanical Engineering Team Lead

Aug. 2024 – Present

Mechatronics Integration of Neural Dynamics

Calgary, AB

- Spearheaded the MIND's mechanical division, leading a 5+ member team in the design and development of a 10-10 EEG headset on Solidworks, optimizing electrode design and placement, ergonomics, and manufacturability through iterative design and prototyping.
- Collaborated with electrical, software, and research teams to integrate the mechanical headset with custom EEG electronics, and leading future project initiatives including prosthetic and exoskeleton systems.

Undergraduate Research Assistant

Sept. 2024 – Present

Predictive & Intelligent Systems Lab

Calgary, AB

- Developing a machine learning forecasting model to optimize electricity purchasing strategies by modeling time-series price fluctuations and demand variability. Validated model performance using historical data from AESO, applied error metrics (MAE/RMSE) and iterative hyperparameter tuning to improve prediction accuracy and system robustness
- Building a predictive decision-support system to identify optimal purchasing windows from AESO price signals for real-time deployment.

TECHNICAL SKILLS

Software/Tools: Siemens NX, SolidWorks, Fusion 360, AutoCAD, Smaragd, SFM, Engineering Client, Supabase, Node.js,

Git/GitHub, CI/CD, Linux, SSH, REST APIs, PowerBI, Power Automate, PowerApps, VSCode, Jupyter, Bluebea Revu

Manufacturing: CNC Milling, 3D Printing, Waterjet, Lathe, Welding, Soldering, Composite Repair, Tooling Design, Fixture Design

Systems & Engineering: GD&T, Tolerance Stack-Up Analysis, Root Cause Analysis, Statistical Process Control, Gage R&R, Dimensional Metrology, Process Optimization, Validation Testing, 8D problem solving, PFMEA, DFMEA, Lean Six Sigma

Embedded & Controls: Raspberry Pi, Microcontroller Integration, Sensor Interfacing, Edge Devices, Node-RED, Serial Communication, Hardware-Software Integration, PLC

Languages: Python, SQL (PostgreSQL), C++, C, TypeScript, JavaScript, MATLAB, DAX, HTML, Ladder Diagrams

AI/ML & Data: PyTorch, TensorFlow, Pandas, NumPy, OpenCV, StatsForecast, CNN/RNN architectures, Time-Series Forecasting, Feature Engineering, Hyperparameter Tuning, Model Evaluation (MAE/RMSE), Data Visualization