Cairo Cristante

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EDUCATION

University of Toronto **Toronto, ON**
Bachelor's of Applied Science, Chemical Engineering (B.A.Sc) + PEY Co-op Sep 2021 — April 2026

- Cumulative GPA: 3.45/4.0 | Dean's List 2022-2026
- **Relevant Courses:** Process Design (**Aspen Plus/Hysys**), Process Control (**MATLAB, Aspen Dynamics**), Engineering Economic Analysis, Foundations in Machine Learning (**Python**), Engineering Materials, Elements of Nuclear Engineering, Forensic Engineering, Process Safety & Risk Analysis

WORK EXPERIENCE

Professional Engineering Year Student - Chemistry & Environment **Bowmanville, ON**
Ontario Power Generation, Darlington Nuclear May 2024 — Aug 2025

- **Chemistry Laboratory & Technical Support** May 2024 — Aug 2025
  - Developed a station-wide reporting tool for the Integrated Station Brief (ISB) package that automatically compiles noteworthy laboratory results, significantly reducing reporting errors and improving visibility across workgroups for timely corrective action.
  - Conducted an internal audit of laboratory practices to assess compliance with environmental regulatory standards, resulting in the identification and resolution of multiple procedural non-compliances.
  - Analyzed labour hours associated with compensatory tasks due to failed online analyzers, supporting a successful case for instrument repair and improved chemical monitoring capability.
  - Advocated for the repair of critical online analyzers through the work control process, directly contributing to the restoration of real-time monitoring for key chemical parameters.
  - Revised laboratory procedure with the latest safety information and updated analytical technique best practices, ensuring department performance to the highest standard.
- **Labware - Laboratory Information Management (LIMS) System** Feb 2025 — Aug 2025
  - Collaborated with a multi-station team to configure and implement a replacement LIMS platform, enhancing laboratory task scheduling and result reporting functionality.
  - Configured station-specific data utilizing chemistry governing documents to accurately reflect laboratory practice, chemical specifications, and system instrumentation.
  - Developed configuration tools and procedural guidelines, resulting in a 50% increase in project progress toward data configuration and production release milestones.
- **Chemical Tote Tracking** Oct 2024 — Aug 2025
  - Supported the tracking of chemical tote (tank) serial numbers, recertification dates, and site location to maintain chemical inventory reliability and ensure prolonged system health.
  - Participated in chemical supplier meetings and vendor site tours to resolve discrepancies in the recertification process and location tracking, preventing situations of unavailable process chemicals that occurred previously.
- **Personal Development** May 2024 — Aug 2025
  - Attended conferences hosted by industry leaders such as the Electric Power Research Institute (EPRI) and CANDU Owners Group (COG), gaining exposure to best practices in nuclear chemistry control and large-scale chemical event response.
  - Facilitated chemistry updates in cross-functional meetings, including Hit Impact Teams, System Health, Plant Health, and Work Planning.
  - Engaged in plant walkdowns and field activities, enhancing understanding of station systems and laboratory operations.

SKILLS SUMMARY

- **Technical Skills:** Microsoft Suite (Excel, Word, PowerBI), SQL, LATEX, AutoCAD Plant 3D, Python (Machine Learning, Data Analytics), MATLAB, Aspen Plus, Aspen Hysys, Aspen Dynamics
- **Internal Software:** Asset Suite 9 (Work Control, Documents, Materials), NIMS, PowerSearch, Engage, ESM, SCR, CEM
- **Relevant Qualifications:** Orange 2 UTP, OPG Security Clearance
- **Interpersonal Skills:** Team Leadership, Team Communication, Project Mangement
- **Interests:** Plant & Process Design, New Nuclear, System Chemistry, Forensic Engineering, Data Based Modeling, Machine Learning, Programming & Web Development, Linux

Projects

Skin Cancer Diagnosis from Images using Machine Learning   **Toronto, ON**
University of Toronto (github.com/cqjro/APS360-Project-Group-49)   Jun 2023 — Aug 2023

- Collaborated to develop training and testing methods for various convolutional machine-learning models resulting in increased training efficiency.
- Conducted extensive research and experimentation to optimize the performance of machine learning models, resulting in a 40% reduction in false negative diagnoses compared to previous methods.

Battery Thermal Runaway Modeling Investigation   **Toronto, ON**
University of Toronto (https://github.com/cqjro/Battery-Thermal-Runaway-Analysis)   Feb 2023 — Apr 2023

- Modelled thermal runaway behavior in MesoCarbon MicroBead Lithium batteries analyzing the effects of initial amounts of reactants, surface area, starting temperature to recommand design of future batteries
- Formulated model that mitigates the self-heating reactions within the battery to advise the design of cooling methods