

Cairo Cristante

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EDUCATION

- **Univeristy of Toronto** **Toronto, ON**
Bachelor of Applied Science & Engineering in Chemical Engineering (B.A.Sc) + PEY Sep 2021 - Apr 2026 (expected)
 - **Relevant Courses:** Process Design (**Aspen Plus/Hysys**), Process Control (**MATLAB, Aspen Dynamics**), Engineering Economic Analysis, Applied Chemistry Laboratory I-IV, Statistics (**Excel**), Foundations in Machine Learning (**Python**)
 - **CGPA:** 3.45

WORK EXPERIENCE

- **Ontario Power Generation** **Bowmanville, ON**
Professional Engineering Year Student - Chemistry & Environment, Darlington Nuclear May 2024 - Aug 2025 (Present)
 - **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
- **Interpersonal Skills:** Team Leadership, Team Communication, Project Mangement
- **Interests:** Plant & Process Design, New Nuclear, System Chemistry, Foresnic Engineering, Data Based Modeling, Machine Learning, Programming & Web Development

PROJECTS

- **Univeristy of Toronto** **Toronto, ON**
Skin Cancer Diagnosis from Images using Machine Learning Jun 2023 - Aug 2023
 - **GitHub Link:** <https://github.com/cqjro/APS360-Project-Group-49>
 - 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.
- **Univeristy of Toronto** **Toronto, ON**
Battery Thermal Runaway Modeling Investigation Feb 2023 - Apr 2023
 - **GitHub Link:** <https://github.com/cqjro/Battery-Thermal-Runaway-Analysis>
 - 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.
- **Univeristy of Toronto** **Toronto, ON**
Biodiesel Synthesis Optimization Study Feb 2023 - Apr 2023
 - Researched and reviewed relevant literature for Biodiesel synthesis using oil transesterification process under basic conditions yielding maximum product recovery.
 - Conducted comprehensive experiments using the One Variable At a Time (OVAT) method to analyze the impact of Reaction Duration, type of oil, type of alcohol, and temperature on biodiesel synthesis yield under basic conditions.
 - Utilized statistical methods to determine trends in yield using reaction data and developed recommendations for optimal process conditions.