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 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 work control process, directly contributing to the restoration of real-time monitoring for key chemical parameters.
  - **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 stations specific data utilizing station chemistry governing documents to accurately reflect laboratory pratice, 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, recertifcation 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 recertification process and location tracking, preventing situations of unavailable process chemicals which occured 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.
    - Facilited 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, Control Documents, Materials), PowerSearch, Engage, ESM, SCR
- **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.