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 station wide reporting tool for the Integrated Station Brief (ISB) package which automatically complied labtorary results that are outside of specified range, resulting in signfiicaltly decreased reporting errors, and increased visability to other work groups for corrective action.
    - Conducted internal audit of laboratory practices to ensure compliance with analytical method requirements of environmental regulators, leading to the capture and resolution of several instances of non-compliance in laboratory procedure.
    - Quantified labour hours spent on compensatory work due to failure of online instrumentation which was subsequently used to advocate for the success repair and increased chemical monitoing capbailities.
    - Advocated for the repair of various online analyzers critical to chemistry control of secondary side systems, resulting in eventual repair and increased monitoring capabilities for curtial chemical paramters.
  - **Labware - Laboratory Information Management (LIMS) System** Feb 2025 - Aug 2025
    - Coordianted with multi-station team on the development of replacement software for current LIMS, increasing laboratory result reporting and scheduling capabilities.
    - Configured stations specific data utilizing station chemistry governing documents to accurately reflect laboratory pratice, chemical specifications, and current station configuration.
    - Engineered configuration tools and procedural guidelines, leading to 50% increase in progress to towards data configuration deadline and production release.
  - **Chemical Tote Tracking** Oct 2024 - Aug 2025
    - Assisted in tracking of chemical tote (tank) serial information, recirtifcation dates, and location to ensure adaquate inventory of process chemicals is maintained to promote prolonged system health.
    - Attended various vendor meetings and vendor site tours to resolve discrepancies in recertification process and location tracking resolving previous incidents in which process chemicals were not avaliable on site.
  - **Personal Development** May 2024 - Aug 2025
    - Engaged in conferences with industry partners such as Electric Power Research Institute (EPRI) and Conexus Nuclear Inc (Formerly CANDU Owners Group) gaining insight into industry best practices for chemistry control and possible resolution of large scale chemical events.
    - Attended various Plant Health, System Health, Work Plan, and Hit Impact Team meetings to take and provide updates from a chemistry perspective.
    - Pariticpated in numerous walkdowns of the station gaining valuable insight into the operation of various plant systems as well as laboratory pratice.

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

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.