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

Skills Summary

- **Technical Skills:** Microsoft Suite (Excel, Word, PowerBI), SQL, LaTeX, AutoCAD Plant 3D, Python (ML and Data Analytics), MATLAB, Aspen Plus, Aspen Hysys, Aspen Dynamics
- **Interpersonal Skills:** Team Leadership, Team Communication, Project Mangement

Work Experience

- **Ontario Power Generation** **Bowmanville, ON**
  Professional Engineering Year Student - Chemistry & Environment May 2024 - Aug 2025 (Present)
  - Configured stations specific data for migration to new Laboratory Information Management System (LIMS), utilizing station chemistry governing documents to accurately reflect and improve scheduling and data retention of labtoraty results.
  - Engineered configuration tools to increase LIMS configuration resulting in 50% increase in progress to towards data configuration deadline and production release.
  - Assisted in tracking of chemical tote serial numbers, location, and recertification dates to adaquate supply provided to station systems reuslting prolonged system healtha corrosion protection
  - Attending various vendor meetings and site tours with vendors to resolve discrepancies in recertification process and location tracking resolving previous issues in which chemicals were not avaliable on site.
  - Developed tools for station wide reporting tool for the Integrated Station Brief (ISB) package to report labtorary results that are outside of specified range, decreasing reporting errors and increasing visability and accountability stations groups for corrective action, as well as highlighting greater visability for condenser tube leaks and other sensitive parameters.
  - Tracked various department metrics including burden hours causing strain on the lab allowing quantifiable metrics to advocate for repairs of online instruments with support from other working groups
  - Advocated for the repair of various online analyzer critical to chemistry control of secondary side systems, resulting in eventual repair and increased monitoring capabilities for curtial chemical paramters.
  - Engaged in conferences with industry partners such as Electric Power Research Institute (EPRI) and Conexus Nuclear Inc (Formerly CANDU Owners Group (COG)) gaining insight into industry best practices for chemistry control and possible resolution of large scale chemical events.
  - Revised Chemistry Labtoratory to with best practices for saftey, chemical analysis methods, and to accomodate advancements in laboratory equipment
  - Conducted internal audit of labtoratory practices to ensure compliance with analytical technique requirements of environmental regulartors leading to capture and resolution of several instances of non-compliance in labtoary procedure.
  - Pariticpated in numerous walkdowns of the station gaining valuable insight into the operation of various plant systems as well as laboratory pratice.

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.