

Simone Reynoso Donzelli

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SUMMARY OF QUALIFICATIONS

- Graduate Chemical Engineering with specialization in Process Systems Engineering and Optimization
- Advanced proficiency in Python with 8+ years of experience, specialized in Data Science, Machine Learning, Artificial Intelligence and Reinforcement Learning
- Ability to prepare deliverables in a fast-paced environment, from consulting background
- Strong attention to detail, work ethic and willingness to be part of a team

PROFESSIONAL BACKGROUND

•Banknote quality control Engineer

January 2025 - Ongoing

European Central Bank (ECB)

Frankfurt, Germany

- Developed a Deep Learning approach using VAE and GMM to assist in watermark approval for secure papers.
- Developed a Python connection to send commands to the Datascolor45IR measuring device and created a flexible GUI capable of plotting and showing specific reflectance values.
- Reviewed ECB banknote production quality control guidelines and contributed to updating related documentation.

•Data Scientist

October 2024 - December 2024

Kaavio

Remote

- Built an LLM-powered search engine with CrewAI which used a crew of agents to retrieve, validate, and summarize company information through keyword-based queries.

•Machine Learning Engineer

January 2024 - October 2024

Cooper Standard

Stratford, Canada

- Analyzed and queried large-scale production data using SQL Server Management Studio, delivering insights to enhance operational performance
- Developed regression models using PyTorch and XGBoost, resulting in a 2% reduction in waste and substantial cost savings
- Designed and implemented a rule-based controller using Gekko to optimize production processes, ensuring control of output variables within desired set-points

•Master's Researcher

January 2023 - December 2024

University of Waterloo

Waterloo, Canada

- Focused on solving chemical process flowsheet design problems in both steady and dynamic states using advanced Machine Learning techniques
- Researched the application of masked hybrid and discrete Reinforcement Learning agents to design chemical process flowsheets in steady state, utilizing Aspen Plus as part of the simulation; results were published in the *AIChE Journal* ([Paper](#))
- Researched the application of Reinforcement Learning agents to simultaneously design and control chemical process flowsheets, using surrogate models to approximate dynamic unit operations and decrease learning times required by the agent. Results were published in the *Computers and Chemical Engineering Journal* ([Paper](#))

•Research Assistant

January 2022 - August 2022

Universidad Iberoamericana

Mexico City, Mexico

- Developed a Python-based hybrid platform integrating ASPEN Plus for real-time optimization utilizing genetic algorithms to optimize a multi-objective design function of an Organic Rankine Cycle ([Project's code](#))

ACADEMIC BACKGROUND

•Master of Science (Chemical Engineering)

January 2023 - December 2024

University of Waterloo

Cummulative GPA: 9.2/10

•Bachelor of Science (Chemical Engineering)

August 2018 - July 2022

Universidad Iberoamericana (IBERO)

Cummulative GPA: 9.6/10

Highest CGPA of the class

PERSONAL PROJECTS

Visit my [personal website](#) to explore my professional journey in Data Science and Machine Learning. My portfolio highlights diverse projects across various fields, including computer vision tasks such as image classification and object detection, supervised learning applications like regression and classification, scientific programming focused on chemical engineering problems, and the development of large language model applications. Throughout these projects, I have demonstrated proficiency in tools such as Python, SQL, Excel, and Power BI, which I use to deliver innovative and impactful solutions.

TECHNICAL SKILLS AND INTERESTS

Languages: Spanish (Native), Italian (Native), English (Level C2 with Cambridge Certification), German (Level C1 with Deutsches Sprachdiplom Certification), French (Level B2 with DELF Certification), Chinese (Level A2 with HSK Certification)

Advanced Programming Languages: Python, Microsoft Office Suite, SQL, PowerBi

Intermediate Programming Languages: MatLab, HTML, CSS, JS

Statistical programs: R-Studio, MiniTab

Chemical Engineering simulation programs: ASPEN Plus, DWSIM

EXTRACURRICULAR AND LEADERSHIP EXPERIENCE

•Teaching assistant

June 2023 - April 2024

University of Waterloo

Waterloo, Canada

- Provided a welcoming environment for students, answering questions and facilitating open discussions to enhance their learning experience
- Taught two courses: an introductory Python programming course and an advanced Aspen Plus course for final-year undergraduate students
- Organized and supervised examinations, offering extra review sessions to clarify doubts and ensure students were well-prepared

•Caritas Volunteer

August 2022

Caritas Roma

Rome, Italy

- Served more than 300 meals to individuals experiencing homelessness
- Organized supporting group talks during lunch to encourage fostering open communication and encouragement to strengthen community bonds and individual resilience