

Simone Reynoso Donzelli

✉ simonereynoso@gmail.com 🌐 Personal Website

PROFESSIONAL BACKGROUND

•Quality control engineer

January 2025 - Ongoing

European Central Bank (ECB)

Frankfurt, Germany

- Researched and implemented ML techniques for banknote watermark approval, exploring supervised and unsupervised anomaly detection methods using the Anomalib library and advanced computer vision models
- Designed and developed a custom GUI application to interface with the Datacolor45IR spectrophotometer. The software performs colorimetric calculations (CIE Lab and CMYK densities) and is intended for deployment in certified European banknote printing works
- Participated in on-site quality control inspections of printed banknotes and contributed to the drafting of official technical documentation for internal and external stakeholders

•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
- Experience inspired personal projects such as an RAG-LLM document chatbot and an SQL-integrated agent capable of executing complex queries and returning readable outputs ([Projects](#))

•Process engineer

January 2024 - October 2024

Cooper Standard

Stratford, Canada

- Simulated product quality using a full ML pipeline: extracted data via SQL, processed inputs in Python, and trained XGBoost and neural network models. Integrated real-time predictions into the production GUI, reducing scrap by 90%
- Developed a rule-based control system using linear programming to optimize product selection in real time, with automated data input from SQL
- Implemented a quality monitoring classifier to flag out-of-spec data, enhancing model robustness with techniques like SMOTE for imbalanced datasets

ACADEMIC BACKGROUND

•Master of Science (Chemical Engineering)

January 2023 - December 2024

University of Waterloo

Cummulative GPA: 9.2/10

- Focused on solving optimization problems in process flowsheet design, under both steady-state and dynamic operating conditions, using advanced Reinforcement Learning methods. Master's Thesis: *A Reinforcement Learning Framework for Simultaneous Chemical Process Flowsheet Generation, Design and Control* ([thesis](#))
- Published two first-authored papers in high-impact journals: *AIChE* ([paper](#)) and *CACE* ([paper](#))
- Presented research at multiple conferences: *AIChE 2024* (oral and poster presentations), *CSCHE* (oral presentation), *DYCOPS* (oral presentation) and *IFAC* (poster presentation)

•Bachelor of Science (Chemical Engineering)

August 2018 - July 2022

Universidad Iberoamericana (IBERO)

Cummulative GPA: 9.6/10

- 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](#))
- Highest CGPA of the class
- Synthesized silver nanoparticles using silver nitrate (AgNO_3) and *Sargassum* as a natural reducing agent
- Initiated and promoted the creation of *Voz de la Experiencia*, a talk series launched during the COVID-19 pandemic where chemical engineering faculty shared their professional experiences and career advice with students

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