

NICOLÁS RESTREPO TORRES

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EDUCATION

Mälardalen University – Västerås, Sweden & **Abo Akademi University** – Turku, Finland
M.Sc. EMJMD program on Engineering of Data-intensive Intelligent Software Systems ([EDISS](#))
National University of Colombia – Bogotá, Colombia
B.Sc. Ingeniería de Sistemas y Computación (Computer and Systems Engineer)
Technische Universität Hamburg-Harburg – Hamburg, Germany
Exchange student in Computational Science and Engineering

August 2022 - February 2025
Cumulative GPA: 4.9 / 5.0
August 2014 - October 2020
Cumulative GPA: 4.4 / 5.0
October 2018 - June 2019

WORK EXPERIENCE

Abo Akademi University

Research Assistant

Turku, Finland

October 2024 – present

- Researching automatization of co-simulation Simulink projects through Functional Mock-up Units (FMUs). Exploring ubiquitous integration of automation logic, enabling model exchange HVAC systems and other complex scenarios.

Alstom

Master's Thesis Student

Västerås, Sweden

February 2024 – October 2024

- Performing advanced research in the domain of Requirements Engineering to achieve automated generation of technical diagrams (i.e. Function Block Diagrams [FBD]) using Natural Language Processing (NLP) and AI approaches.
- The generated FBD allowed software requirements for Model-Based Design artifacts to reduce human intervention and enhance the verification process in industrial processes within the safety-critical environment of the railway industry.

RISE - Research Institute of Sweden

Machine Learning Intern

Västerås, Sweden

July 2023 – August 2023

- Working on Large Language Models (LLMs) such as BERT classifiers to be fine-tuned and evaluated on industrial and public datasets in the domain of Enterprise Software Engineering and Requirements Engineering. Involved in exploring Zero-Shot, Few-Shot, and other NLP-based classifiers including data processing for classification.
- Designed a complete pipeline for multilabel classification of GitHub issues including scrapping and pre-processing from GitHub and industrial data from partners such as [Vaadin](#) obtaining an LLM fine-tuned model with ~75% accuracy.

Empresas Cruz - Inmobana

Technical Leader

Bogotá, Colombia

August 2022 – December 2022

- Oversaw the technical development of Inmobana with AWS using SAM templates and a microservices architecture through a React frontend, managing a two-person team and conducting Scrum-based sprints.
- Performed a Design Sprint to capture functional and non-functional requirements. ensured project quality through technical interviews and code reviews, and designed the software architecture for the project to be based on.

PuntoRed

Backend leader - [Veci](#)

Bogotá, Colombia

January 2022 – July 2022

- Codirected and developed new core business functionalities such as small loans, improvement of the payment getaway, and interoperations with other banking APIs, this enabled Veci to fork from PuntoPay as an independent fintech startup.
- The application has reached coverage of [7000+](#) small businesses in Colombia at this point.

Backend engineer - PuntoPay

September 2020 – December 2021

- Developing REST backend in Ruby on Rails and frontend development with Nuxt.js for PuntoPay's backoffice, a web app PuntoRed fintech to handle 20M+ transactions (≈1000M+ USD) monthly and 35.000+ users with audit integration.
- Incident resolution times were reduced by 87% and compensation times decreased from four days to one day on avg.
- Accomplished unit automatic testing based on the (TDD) methodology as part of the Jenkins pipeline that orchestrates the Docker containerized mSOA (including SonarQube as a quality assessment), where I led the design of the pipeline.

Airbus Commercial Aircraft SAS

Information access management (IAM) and DevOps intern

Hamburg, Germany

March 2019 – September 2019

- Streamlined IAM requests and identity management for 50,000+ employees in Semaphore (ITSM) and reduced microservices deployment time by 55% using Jenkins automation in a DevOps environment with OpenShift Kubernetes. Contributed to project architecture and development in Angular and ASP.NET.

TECHNICAL SKILLS

Programming Languages:

Intermediate (3-5 years) - Python, Ruby, JS

Beginner (< 2 years) - C/C++, Haskell, Java

Frameworks and technologies:

NLP, ML, LLM, Docker, Ruby on Rails, Pandas, AWS, Git, Mendeley, GNU/Linux, LaTeX, Jenkins, OpenShift, Django, ANTLR4, IONIC, TensorFlow, MongoDB, MySQL, DevOps, Rest APIs, React/Native, CodeIgniter, TDD, Vue.js, Heroku, Rancher. SAM

LANGUAGES

Spanish (Native)

English (Proficient) (C1 – TOEFL: 104/120)

German (Proficient) (B2 – TestDaF 4/5)

Italian (Intermediate), Finnish (Beginner)

RESEARCH GROUPS (AS UNDERGRADUATE)

[PLaS](#) (Programming Languages and Systems)

OTHER ACTIVITIES

Badminton, Volleyball, Cyclism, [Music Reviews](#)

AWARDS

KOSPIE DAAD scholarship

July 2018 – July 2019

Full s. as exchange student from TUHH worth (11.000 USD)

EMJMD EU scholarship

August 2022 – July 2024

Full s. to finish an EMJMD program (EDISS) (49.000 USD)