

Camilo Carvajal Reyes

PhD student at Imperial College London. My research interests are generative models, stochastic algorithms in data science, and machine learning, with a special emphasis on AI ethical.

Personal Details

Address 780B Fulham Road, SW6 5SL, London, United Kingdom
Phone +44 7771800813
Email c.carvajal-reyes24@imperial.ac.uk
Webpage <https://www.dim.uchile.cl/~ccarvajal/>

Education

- 2024-2028 **Imperial College London**, *Department of Mathematics*, PhD,
Supervised by Prof. Felipe Tobar.
- 2023-2024 **Universidad de Chile**, *FCFM*, MSc in Data Science,
Thesis: Safe sampling from generative models, supervised by Felipe Tobar.
Exploring modifications to the sampling process of score-based models for ethical generation.
- 2016-2022 **Universidad de Chile**, *FCFM*, Mathematical Engineering Degree*.
Bachelor of Science in Engineering Mathematics (2022)
- 2018-2020 **CentraleSupélec**, *Université Paris Saclay*, General Engineering*, Research Track.
*Double Degree Programme

Experience

- Fall 2024 **Research Assistant**, *Data and Artificial Intelligence Initiative (IDIA)*,
Further investigate alignment strategies for score-based models following MSc work..
- 2023-2024 **Co-founder and External Relations Coordinator**, *AEDIA*,
Association for Ethics in Data Science and Artificial Intelligence.
Establishing links with relevant institutions and events organisation.
- Spring 2023 **Organisation Chair EVIC 2023**, *Data and Artificial Intelligence Initiative (IDIA)*,
Assistance for Latin-American Summer School in Computational Intelligence..
- Spring 2022 **Visiting Project Expert**, *UFRO-ESO*,
Supervised by Andrés Ávila y Juan Pablo Gil.
Exploring deployment strategies of ML models with MLOps methodology - Collaboration between Universidad de la Frontera and European Southern Observatory, CORFO Project 14ENI2-26866.
- Summer 2022 **Machine Learning Intern at European Southern Observatory**, *Paranal Observatory*,
Supervised by Juan Pablo Gil - Software team.
Natural Language Processing for problem troubleshooting using software logs.
- Spring 2020 **Research Intern at AIMAC Team**, *CentraleSupélec - Campus de Rennes, France*,
Supervised by Renaud Séguier and Simon Leglaive.
Assessing contextualized word embeddings and language modelling through probability distributions on a semantic latent space.

Projects

- Autumn 2024 **LLM-based gender debiasing for STEM students communications**, *Google-Universidad de Chile project*, - Evaluation code and paper writing.
- 2023 **Natural language processing of *EthicApp* text data**, *Ethics Unit, FCFM*, Using language models for assessing ethics competence of engineering students. Collaboration with Ethics Unit, Humanities Department, FCFM UChile.
- Spring 2022 **Named entity recognition in medical prescriptions**, *MDS-Minsal*, Model development for use in prescription error detection, MDS7201 Data Science Project.
- Fall 2022 **Deep versus interpretable models for emoji detection in Tweets**, *Semester Project CC5205 Data Mining (best mark)*.
- 2018-2020 **Parcours Recherche at CentraleSupélec**, *Track for Research Specialization*, . Exploring language representation learning for emotions recognition Science Communication training (with L'école de la Mediation)

Teaching and Talks

- Spring 2025 **MATH70101 Deep Learning**, *Imperial College London*, Graduate Teaching Assistant (GTA), Marking and material creation. MSc in Machine Learning and Data Science course
- Spring 2025 **MATH70134 Mathematical Foundations of Machine Learning**, *Imperial College London*, GTA, Tutorials and Marking - 4th year and MSc course.
- Autumn 2024 **MATH40006 Introduction to Computation**, *Imperial College London*, GTA, Tutorials and Marking - 1st year course.
- September 2024 **Talk at CentraleSupélec**, *Diffusion models and safeness*, Seminar at AIMAC team, Rennes Campus.
- Spring 2023 **MDS7203 Generative Models**, *Universidad de Chile*, Teaching Assistant - Syllabus design, New elective course for MSc in Data Science. Lecture: Generative autoregressive models Laboratories: Variational Autoencoders and Score-based models
- Fall 2023 **MDS7104 Machine Learning**, *Universidad de Chile*,
Fall 2024 Teaching Assistant, - Tutorials and lectures.
- Fall 2023 **MDS7201 Data Science Project**, *Universidad de Chile*,
Fall 2024 Project Assistant (Assisting Data Science projects with companies).
- Spring 2022 **MA4402 Stochastic Simulation: Theory and Laboratory**, *Universidad de Chile*, Teaching Assistant, and elaboration of a course book and edition of practical laboratories.
- November 2022 **Talk at Chilean Ministry of Health**, *Workshop: Data Science in medication errors*, Automatic Entity Recognition in medical prescriptions.
- February 2022 **Talk at ESO AI Forum**, *Natural Language Processing*, Artificial Intelligence internal group at European Southern Observatory.
- March 2021 **Lecture and Tutorial at CentraleSupélec**, *Natural Language Processing*, *AT Digital at the service of human factor* challenge, Rennes Campus.
- 2019 **Talk at Palais de la Découverte, Paris** , *Artificial Intelligence and Emotions* , *On Sciences Participatives: 1 chercheur · e, 1 manip.*
- 2018 **Introduction to Algebra**, *Universidad de Chile*, Grading Assistant. Teaching Assistant Training

Personal Skills

Programming **Python.**

Libraries: pytorch, transformers, numpy, pandas, scikit-learn, matplotlib
Fundamentals of Accelerated Computing with CUDA Python certification

LaTeX, Matlab, Git, Julia, R, Rust, SQL, MongoDB.

Languages **Spanish**, *First Language.*

English, *Full professional proficiency, C1+, IELTS band 8 (2023).*

French, *Full professional proficiency, C1, CentraleSupélec internal examination (2020).*

Portuguese, *Advanced User.*

German, *Beginner.*

Awards and Scholarships

2024–2028 **Roth Scholarship - Department of Mathematics, Imperial College London**

2024 **2nd place in Poster Competition Technical Day**

Advanced Center for Electrical and Electronic Engineering (AC3E)

2018–2020 **CentraleSupélec Foundation Scholarship**

2016 **Outstanding Student - FCFM Universidad de Chile**

2014 ***Penguins without borders* Scholarship for exchange program in New Zealand**

Extra-Curricular

Musical **Conducting at CentOr**, 2019.

Activities CentraleSupélec Orchestra

Beauchef Orchestra Co-founder, 2017.

Students Symphony Orchestra from U. de Chile Engineering Faculty

French Horn Playing, 2024–.

Imperial College Sinfonietta

Trumpet Playing, 2008–2023.

Plateau de Saclay Symphony Orchestra, Universities of Rennes Symphony Orchestra,
Santiago's Fire Brigade Band, U. de Chile Big Band, North Shore Brass Band

FOJI Foundation Scholarship, 2015.

Metropolitan Students Symphony Orchestra

Writing **Creative Writing**, 2014, Michael King Writers Centre, Auckland.

A New Sense of Belonging Workshop

Gabriela Mistral Award, 2013.

Inter-school Story Contest Universidad Andrés Bello

International **Staff at BDI-CentraleSupélec**, 2019.

Culture International Students Organization

Language Partner - Stanford University, 2016–2017.

Bing Overseas Studies Program in Santiago

Beauchef International Community, 2016–2022.

Welcoming Incoming International Students