

TOMÁS IGNACIO OPAZO TORO

@toopazo@proton.me

+56 9 7298 4683

linkedin.com/in/toopazo

github.com/toopazo



PROFESSIONAL EXPERIENCE

Professor and Researcher

DUOC - School of Informatics and Telecommunications

Mar. 2025 – present Santiago, Chile

Professor in the Data specialty track, covering data engineering and software development. I also carry out applied research and technological innovation in artificial intelligence and computer vision.

Chief R&D Officer

Deepview - AI Provider for Retail Physical Security

Nov. 2022 – present Santiago, Chile

I work daily with classification, detection, similarity, segmentation, clustering, generation/inpainting, and depth models. In particular, I focus on the use of relational tables for large-scale vector storage and retrieval (Postgres and pgvector). The stack includes libraries such as: torch, torchvision, pandas, opencv, numpy, scikit-learn, albumentations, onnxruntime, transformers, among many others. The primary cloud infrastructure used was AWS, with services including EC2, S3, RDS, Redshift, EKS, Lambda, and SageMaker.

Research Assistant

AVIA Lab - The Pennsylvania State University

Aug. 2020 – Aug. 2022 State College, PA, USA

Research assistant at the **Air Vehicle Intelligence and Autonomy (AVIA) Laboratory** at The Pennsylvania State University. I studied autonomous aerial vehicles (drones) through a series of experimental tests, and coordinated a team of undergraduate and graduate students for flight data collection and analysis. The data were used to build machine learning models that were integrated into the flight software to optimize the aerodynamic performance of the drones. Scientific output is listed below.

Development Engineer

Advanced Mining Technology Center - Universidad de Chile

Jan. 2014 – Jul. 2016 Santiago, Chile

Development engineer for a long-range passive seismic tomography project at the **AMTC**, funded through Corfo's L4 innovation line.

I was responsible for integrating, programming, and maintaining the seismic recorders, applying hardware and software improvements, and deploying them in the field during various campaigns. Data were then collected, processed, and analyzed. I worked in the field at Los Bronces, Pelambres, Volcán Tacora, and throughout the Norte Chico region.

AWARDS



Ramón Salas Edwards Award

Chilean Institute of Engineers, 2020, for the SUCHAI project: nanosatellite of Universidad de Chile for aerospace research.



Best paper award

Test and Evaluation session AHS 74th conference, Arizona, USA



Arctic Code Vault Contributor

Recognized as part of the 2020 GitHub Archive Program.

SKILLS

Research

Innovation

Technology

Computer Vision

Control Systems

AI and ML

Software

Project Management

Leadership

Commitment

Autonomy

LANGUAGES

English

German

Russian



EDUCATION

Graduate Diploma in Applied Research and Innovation

DUOC

2025 – 2026

In progress

Ph.D. in Aerospace Engineering

The Pennsylvania State University

Sept 2016 – June 2022

Thesis title: Power minimization for fixed-pitch coaxial rotors in hover

Electrical Engineer

Universidad de Chile

2007 – 2013

Graduated with highest distinction.

PUBLICATIONS

Journal Articles

- T. I. Opazo, R. A. Raja Zahirudin, J. Palacios, S. Schmitz, and J. W. Langelaan, "Analytical and experimental power minimization for fixed-pitch coaxial rotors in hover," *Journal of Aircraft*, vol. 60, no. 2, pp. 546–559, 2023.
- S. Yan, T. I. Opazo, J. W. Langelaan, and J. L. Palacios, "Experimental evaluation and flight simulation of coaxial-rotor vehicles in icing clouds," *Journal of the American Helicopter Society*, vol. 65, no. 2, pp. 1–15, 2020.
- C. Gonzalez, C. Rojas, A. Becerra, J. Rojas, T. Opazo, and M. Diaz, "Lessons learned from building the first Chilean nano-satellite: The suchai project," 2018.

Conference Proceedings

- J. Cornelius, T. Opazo, S. Schmitz, *et al.*, "Dragonfly-aerodynamics during transition to powered flight," in *Vertical Flight Society's 77th Annual Forum & Technology Display*, 2021.
- T. Opazo and J. W. Langelaan, "Longitudinal control of transition to powered flight for a parachute-dropped multirotor," in *AIAA Scitech 2020 Forum*, 2020, p. 2072.
- S. Yan, T. Opazo, J. Palacios, J. W. Langelaan, and L. D. Germain, "Experimental evaluation of multi-rotor UAV operation under icing conditions," in *Annual Forum Proceedings-AHS International*, American Helicopter Society, vol. 2018, 2018.
- S. W. Roecker, R. M. Russo, D. Comte, *et al.*, "Preliminary results from the Chile-Illapel aftershock experiment (Chillax)," in *AGU Fall Meeting Abstracts*, vol. 2016, 2016, S21B–2715.
- D. Comte, D. Carrizo, S. Peyrat, *et al.*, "The September 16, 2015 Illapel (Mw 8.3) earthquake: Comprehensive analysis from seismic and geodetic observations," in *AGU Fall Meeting Abstracts*, vol. 2015, 2015, S54C–02.

PROJECTS AND AWARDED GRANTS

I have participated in the following grants through the full application process and subsequently as principal investigator or co-investigator:

Oído IA Match

DUOC - Crea+ Competitive Fund

 July 2025 – December 2025

A technological innovation project funded by DUOC through its Crea+ project line. It is a pilot project developed in collaboration between DuocUC and Clínica Universidad de los Andes, addressing the critical gap in otological diagnostics in Primary Health Care. With diagnostic accuracy rates below 25% among general practitioners, the project aims to implement an AI-based system that performs matching between anonymized pathological images and those captured by primary care professionals, enabling more accurate diagnoses and appropriate treatments, especially in rural areas without access to specialists.

The following link contains a [video demonstration of the project results](#).

Deepview: Integration of Scientific Capabilities for Exponential Growth

ANID - Insertion of Doctoral Graduates in the Productive Sector

 2022 – December 2024

A grant aimed at strengthening the research, development, innovation, and knowledge transfer capacity of Chilean companies, startups, or scientific-technological centers through the hiring of professionals holding a doctoral degree. The project develops a predictive model for theft risk associated with a specific customer's purchase behavior at checkout areas. This is modeled using descriptor vector and similarity technologies that identify behavioral patterns associated with theft events. The model is integrated into Deepview's platform for use in real retail environments.

COURSES AND CERTIFICATIONS

- How to Plan a Class Session - Schreyer Institute of Teaching Excellence - 2021
- HackerRank - Rest API (Intermediate) - [↗ Link](#)
- AWS Skill Builder - AWS Cloud Practitioner - [↗ Link](#)