

# Víctor Navarro Aránguiz

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## Education

<b>Master in Astronomy</b> <i>University of Chile, Faculty of Physical and Mathematical Sciences</i> Thesis: "Characterization of the variability of blazars in the radio band"	2023
<b>Bachelor of Sciences in Engineering specializing in Computer Science</b> <i>University of Chile, Faculty of Physical and Mathematical Sciences</i>	2021
<b>Bachelor of Sciences in Astronomy</b> <i>University of Chile, Faculty of Physical and Mathematical Sciences</i>	2018

## Professional Experience

<b>AI Engineer</b> <i>CodeGPT</i> Built AI-driven code tools, creating a knowledge graph algorithm with a scalable processing system. Developed the backend to integrate LLMs and Retrieval Augmented Generation (RAG) for a production-ready code assistant. Led the full infrastructure migration and created an on-premise solution to meet enterprise data privacy needs.	Dec 2023 - Jul 2025
<b>Data Scientist</b> <i>Data Science Institute, Universidad del Desarrollo</i> Analyzed massive mobile datasets to create a national "mobility index", which was directly used by the Chilean government to inform lockdown policies. For enterprise clients, I developed a recommendation system to drive cross-sales and implemented Bayesian models for Customer Lifetime Value and journey analysis.	Apr 2020 - Nov 2023
<b>Research Assistant</b> <i>National Astronomical Observatory, University of Chile</i> Developed an Approximate Bayesian Computation algorithm as part of my Master's thesis to characterize Blazar variability, cutting model fitting time from hours to minutes. Also contributed to the Cherenkov Telescope Array (CTA) project by acquiring data and performing redshift classification.	Feb 2020 - Dic 2022
<b>Developer</b> <i>FONDECYT 11180913</i> Developed and published tsnmf, a Scikit-Learn compatible Python package for Topic-Supervised NMF optimized for sparse matrices. This package served as the core model in a published study on city-wide transportation mode inference.	Jul 2019 - Jul 2020

## Publications

1. E. Elejalde, L. Ferres, V. Navarro, L. Bravo and E. Zagheni. (2024). [The social stratification of internal migration and daily mobility during the COVID-19 pandemic](#). *Scientific Reports*, 14(1):12140. DOI: 10.1038/s41598-024-63098-5.
2. L. Pappalardo, G. Cornacchia, V. Navarro, L. Bravo and L. Ferres. (2023). [A dataset to assess mobility changes in Chile following local quarantines](#). *Scientific Data*, 10:6. DOI: 10.1038/s41597-022-01893-3.
3. P. Goldoni, S. Pita, C. Boisson, W. Max-Moerbeck, E. Kasai, D. A. Williams, F. D'Ammando, V. Navarro-Aranguiz, M. Backes, U. Barres de Almeida, J. Becerra-Gonzalez, G. Cotter, O. Hervet, J.-P. Lenain, E. Lindfors, H. Sol and S. Wagner. (2021). [Optical spectroscopy of Blazars for the Cherenkov Telescope Array](#). *Astronomy & Astrophysics (A&A)*, 650:A106. DOI: 10.1051/0004-6361/202040090.
4. S. Casassus, H. Avenhaus, S. Perez, V. Navarro, M. Carcamo, S. Marino, L. Cieza, S. P. Quanz, F. Alarcon, A. Zurlo, A. Osses, F. R. Rannou, P. E. Roman and M. Barraza. (2018). [An inner warp in the DoAr 44 T Tauri transition disk](#). *Monthly Notices of the Royal Astronomical Society (MNRAS)*, 477(4):5104-5114. DOI: 10.1093/mnras/sty894.

# Honors and Awards

<b>Outstanding Professor</b>	2024
<i>Universidad del Desarrollo</i>	
Recognized for commitment to student formation and academic excellence in postgraduate teaching	
<b>Best Poster in Cosmology</b>	Nov 2019
<i>XVI Latin American Regional IAU Meeting</i>	
Awarded for a poster on weak-lensing analyses of dark matter halos using Hyper Suprime-Cam data	
<b>Outstanding Student, FCFM University of Chile</b>	2017 - 2019
<i>University of Chile, Faculty of Physical and Mathematical Sciences</i>	
The University annually gives recognition to students with outstanding academic performance	

# Teaching Experience

<b>Python for Data Science course for Master students</b>	Jun 2024 - Jul 2024
<i>Universidad del Desarrollo</i>	
Designed and taught introductory programming course for Master in Data Science students	
<b>Introduction to Programming for undergraduate students</b>	Mar 2024 - Jul 2024
<i>Universidad del Desarrollo</i>	
Designed and taught Introduction to Programming for first-year students	
<b>Programming in Python course</b>	Oct 2023
<i>Central Bank of Chile</i>	
Designed and taught Python programming focused on data analytics	

# Personal Projects

<b>Loyca.ai</b>   <a href="#">GitHub</a>	
Developed an open-source, local-first desktop assistant in Rust and Tauri, demonstrating a privacy-centric approach to AI. The application utilizes an on-device Vision Language Model (VLM) to perform real-time contextual analysis of the user's screen, enabling proactive, local-first assistance.	
<b>Transformers.js Playground</b>   <a href="#">Hugging Face</a>	
Created an interactive web application to demonstrate the capabilities of client-side, in-browser machine learning using the Transformers.js library. The project serves as a practical environment for evaluating on-device model inference and its accessibility.	
<b>LLM-Powered Slack Agent</b>   <a href="#">GitHub</a>	
Developed an advanced LLM-powered Slack agent (mid-2023) demonstrating agentic architectures. The system implements both ReACT (Reasoning and Acting) and RAG (Retrieval-Augmented Generation) frameworks to enable context-aware interactions, dynamic tool use, and real-time knowledge integration.	