Cristóbal Rodrigo **Donoso Oliva**

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EDUCATION

Universidad de Chile — **Santiago, Chile**
Ph.D. in Economics — *Mar. 2025 – Dec. 2028 (Expected)*

Latin American Council of Social Sciences (CLACSO) — **Remote**
Advanced Diploma in Artificial Intelligence and Social Sciences — *Sep. 2024 – Dec. 2024*

University of Concepción — **Concepción, Chile**
Master of Computer Science — *Apr. 2017 – Sep. 2019*

University of Concepción — **Concepción, Chile**
B.Sc. in Computer Engineering — *Mar. 2013 – Aug. 2018*

EXPERIENCE

Department of Economics, Universidad de Chile — **Santiago, Chile**
Research Assistant — *May 2026 – Present*
- Text-as-Data pipeline for processing FOMC documents and classifying them using Deep Learning tools

Department of Computer Science, University of Concepción — **Concepción, Chile**
Teaching Assistant — *Mar. 2019 – Present*
- Data Science II

Automatic Learning for the Rapid Classification of Events (ALeRCE) — **Concepción, Chile**
Research Collaborator — *Oct. 2017 – Present*
- Development of machine learning algorithms to classify astronomical events

Harvard University and University of Concepción — **Concepción, Chile**
Research Associate — *Jan. 2021 – Aug. 2025*
- Representation learning using Transformer architectures ([1], [2])
- Logistics and tutorials for the MACI internship

Millennium Nucleus on Young Exoplanets and their Moons — **Santiago, Chile**
Research Associate — *Dec. 2022 – Dec. 2024*
- Development of deep learning tools to detect exomoons from noisy astronomical images
- Application of physics-informed neural networks to discover moon candidates

Chilean Ministry of Science, Technology, Knowledge and Innovation — **Santiago, Chile**
Data Engineer — *Feb. 2021 – May 2021*
- Exploratory and descriptive analysis of citizen surveys following the 2019 demonstrations
- Implementation of natural language processing models for answer classification

Unidad de Data Science, University of Concepción — **Concepción, Chile**
Project Engineer — *Nov. 2020 – Jan. 2021*
- Automatic tree detection using georeferenced imagery

University of Concepción and Harvard University — **Concepción, Chile**
Research Associate — *Dec. 2019 – Dec. 2020*
- Astronomical time series forecasting

Unidad de Data Science, University of Concepción — **Concepción, Chile**

Teaching Assistant *Oct. 2020 – Dec. 2020*

- Data Science Diploma: Advanced Machine Learning

Institute for Applied Computational Science, Harvard University **Boston, USA**

Teaching Assistant *Sep. 2019 – Dec. 2019*

- CS109a: Introduction to Data Science
- CS207: Systems Development for Computational Science

Institute for Applied Computational Science, Harvard University **Boston, USA**

Research Associate *Sep. 2019 – Dec. 2019*

- Recurrent neural networks for processing astronomical data streams

Automatic Learning for the Rapid Classification of Events (ALeRCE) **Santiago, Chile**

Researcher *Apr. 2019 – Aug. 2019*

- Recurrent neural networks for processing astronomical data streams

Unidad de Data Science, University of Concepción **Concepción, Chile**

Project Engineer *Mar. 2019 – Jul. 2019*

- Land-use segmentation using satellite imagery and convolutional neural networks
- Automatic tree counting using drone imagery and convolutional neural networks

Department of Computer Science, University of Concepción **Concepción, Chile**

Teaching Assistant *Aug. 2018 – Dec. 2018*

- Data Science I

Institute for Applied Computational Science, Harvard University **Boston, USA**

Research Student *Aug. 2018*

- Chile-Harvard Data Science School

Fastfit – CORFO Project **Concepción, Chile**

Software Engineer Intern *Sep. 2017 – Jan. 2018*

- Development of an integrated management system for Fast Fit Gym

Department of Computer Science, University of Concepción **Concepción, Chile**

Teaching Assistant *Mar. 2015 – Jun. 2018*

- Propositional and First-Order Logic

Department of Computer Science, University of Concepción **Concepción, Chile**

Teaching Assistant *Mar. 2015 – Aug. 2015*

- Programming Language C

San Ignacio High School **Concepción, Chile**

Instructor *Apr. 2015 – Jul. 2015*

- Scientific Tools Program for High School Students

CONFERENCES AND WORKSHOPS

Astroinformatics Conference **Observatory of Capodimonte, Naples, Italy**

Talk *Oct. 2023*

- Planet Detection via High-Contrast Imaging Using Deep Learning

Fourth Chile-Japan Academic Forum **Región de Los Lagos, Chile**

Short Talk *Dec. 2022*

- ASTROMER: A transformer-based embedding for the representation of light curves

Statistical Challenges in Modern Astronomy VII **Virtual**

Poster Presentation *May 2021*

- The effect of phased recurrent units in the classification of multiple catalogs of astronomical light curves

LANGUAGES

- Spanish: Native
- English: Intermediate

Publications

Donoso-Oliva, C, I Becker, P Protopapas, G Cabrera-Vives, Harsh Vardhan, et al. Astromer: A transformer-based embedding for the representation of light curves. *Astronomy & Astrophysics*, 2022.

Donoso-Oliva, Cristobal, Ignacio Becker, Pavlos Protopapas, Guillermo Cabrera-Vives, Martina Cádiz-Leyton, and Daniel Moreno-Cartagena. Generalizing across astronomical surveys: Few-shot light curve classification with astromer 2. *Astronomy & Astrophysics*, 707:A170, 2026.

Donoso-Oliva, C, G Cabrera-Vives, P Protopapas, R Carrasco-Davis, and PA Estevez. The effect of phased recurrent units in the classification of multiple catalogs of astronomical lightcurves. *Monthly Notices of the Royal Astronomical Society*, 2021.

Daniel Moreno-Cartagena, Guillermo Cabrera-Vives, Pavlos Protopapas, **C. Donoso-Oliva**, Manuel Pérez-Carrasco, and Martina Cádiz-Leyton. Positional encodings for light curve transformers: Playing with positions and attention. 2023.

P Sánchez-Sáez, Hernan Lira, Luis Martí, Nayat Sanchez-Pi, J Arredondo, FE Bauer, A Bayo, G Cabrera-Vives, **Donoso-Oliva, C**, PA Estévez, et al. Searching for changing-state agns in massive data sets. i. applying deep learning and anomaly-detection techniques to find agns with anomalous variability behaviors. *The Astronomical Journal*, 162(5):206, 2021.

F Förster, G Cabrera-Vives, E Castillo-Navarrete, PA Estévez, P Sánchez-Sáez, J Arredondo, FE Bauer, R Carrasco-Davis, M Catelan, F Elorrieta, et al. The automatic learning for the rapid classification of events (alerce) alert broker. *The Astronomical Journal*, 161(5):242, 2021.

Rodrigo Carrasco-Davis, Guillermo Cabrera-Vives, Francisco Förster, Pablo A Estévez, Pablo Huijse, Pavlos Protopapas, Ignacio Reyes, Jorge Martínez-Palomera, and **Donoso, Cristóbal**. Deep learning for image sequence classification of astronomical events. *Publications of the Astronomical Society of the Pacific*, 131(1004):108006, 2019.