

# Vicente Hojas

MSc

---

## Contact Information

Email vhojas@caltech.edu

---

## Research Interests

Numerical Analysis, Scientific Computing, Machine Learning, Data Science, Wave Propagation, Perfectly Matched Layers

---

## Education

- 2024-2030 (Expected) **PhD in Applied and Computational Mathematics (ACM)**, *California Institute of Technology*.
- 2021-2023 **Master of Science in Engineering**, *Pontificia Universidad Católica de Chile*.  
Advisors: Manuel Sánchez (Pontificia Universidad Católica de Chile) and Carlos Pérez Arancibia (University of Twente). Research in Discrete-Analytic Perfectly Matched Layers
- 2017-2023 **Mathematical and Computational Engineering**, *Pontificia Universidad Católica de Chile*.
- 2017-2021 **Bachelor of Science in Engineering**, *Pontificia Universidad Católica de Chile*.  
Major in Mathematical Engineering

---

## Publications

- 2024 **Reflectionless Discrete Perfectly Matched Layers for Higher-order Finite Difference Schemes**, *SIAM Journal on Scientific Computing (SISC)* 46(5).  
Coauthors: Manuel Sánchez, Carlos Pérez Arancibia
- 2024 **Reflectionless Discrete Analytic Perfectly Matched Layers for Finite Element Methods**, *In preparation*.  
Coauthors: Manuel Sánchez, Carlos Pérez Arancibia

---

## Talks and Conferences

- January 2024 **Workshop of Numerical Analysis of Partial Differential Equations (WONAPDE 2024)**, *Concepción, Chile*, Minisymposium on Computational Electromagnetism.  
Title: Reflectionless Discrete PMLs for High-Order Finite Difference Schemes and Finite Element Methods
- March 2023 **University of Twente Mathematics of Computational Science group's seminar**, *Enschede, The Netherlands*.  
Title: Reflectionless Discrete Perfectly Matched Layers for Higher-order Finite Difference Schemes
- March 2023 **SIAM Conference on Computational Science and Engineering (CSE23)**, *Amsterdam, The Netherlands*, Poster session.  
Title: Reflectionless Discrete-Analytic Perfectly Matched Layers for Higher-order Finite Difference Schemes
- August 2022 **XXX Congreso de Matemática Capricornio (COMCA). Invited session of Numerical Methods for PDEs**, *Universidad Arturo Prat*.  
Title: Reflectionless Discrete Perfectly Matched Layers for Higher-order Finite Difference Schemes

---

## Academic Experience

- 2023 **Teaching assistant**, *Pontificia Universidad Católica de Chile*.  
Course: Numerical Linear Algebra (IMT2111)
- 2019-2020 **Teaching assistant**, *Pontificia Universidad Católica de Chile*.  
Courses: Discrete Mathematics (IIC1253), Calculus III (MAT1630)

---

## Professional Experience

- March-June 2024 **Researcher**, *Centro Nacional de Inteligencia Artificial (CENIA)*, Santiago, Chile.  
Research in data-driven dynamical systems
- January-March 2022 **Internship**, *Quiñenco S.A.*, Santiago, Chile.  
Data analysis of cybersecurity risks. Company belongs to the finance sector

---

## Honors and Awards

- 2023 Member of the winner group of the Hacksciml 2023, organized by CENIA
- 2023 ANID National Master scholarship
- 2023 SIAM Travel Award (for CSE23 conference)
- 2022 Academic Excellence Award for Interdisciplinary Major (PUC)
- 2022 Master's Thesis supported by Fondecyt regular grant N 1221189
- 2021 Ranked first of 479 students in Bachelor's degree (PUC)
- 2017 Adolfo Rojas scholarship

---

## Personal Skills

- Language Spanish (native)  
English
- Programming Python, LaTeX, C, MatLab, openMP