

BERNARDO SUBERCASEAUX

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EDUCATION

Carnegie Mellon University, Pittsburgh PA, United States August 2021 - (expected) 2026
Second year CS PhD student, advised by [Marijn Heule](#).

University of Chile, Chile March 2014 - December 2020
Master in CS (GPA 7.0/7.0), advised by [Pablo Barceló](#) and [Jorge Pérez](#).
Bachelor in Engineering and CS (GPA 7.0/7.0), 2019.

CentraleSupélec (ex École Centrale Paris), France September 2016 - June 2018
Bachelor + Master in Engineering - Computer Science (GPA 3.58/4.00)
Received the Eiffel Excellence Scholarship from the French government.

CONFERENCE PUBLICATIONS

- LPAR 2023 (Best Paper Award)**, *“Toward Optimal Radio Colorings of Hypercubes via SAT-solving”*. with M. Heule.
- TACAS 2023 (Best Paper Nominee)**, *“The Packing Chromatic Number of the Infinite Square Grid is 15”*. with M. Heule.
- SAT 2022**, *“The Packing Chromatic Number of the Infinite Square Grid is at Least 14”*. with M. Heule.
- NeurIPS 2022**, *“Augmenting Online Algorithms with ε -Accurate Predictions”*. with A. Gupta, D. Panigrahi and K. Sun.
- NeurIPS 2022**, *“On Computing Probabilistic Explanations for Decision Trees”*. with M. Arenas, P. Barceló, and M. Romero.
- FUN2022**, *“Wordle is NP-hard”*. with D. Lokshtanov.
- NeurIPS2021 (Spotlight)**, *“Foundations of Symbolic Languages for Model Interpretability”*. with M. Arenas, D. Baez, P. Barceló, and J. Pérez.
- NeurIPS2020**, *“Model Interpretability through the lens of Computational Complexity”*. with P. Barceló, M. Monet and J. Pérez.
- AFCI@NeurIPS 2020**, *“Foundations of Languages for Interpretability and Bias Detection”*. with P. Barceló and J. Pérez.
- ICDT 2020**, *“On the Expressiveness of LARA: A Unified Language for Linear and Relational Algebra”*. with P. Barceló, N. Higuera and J. Pérez.
- FUN 2020**, *“The Computational Complexity of Evil Hangman”*. with J. Barbay.
- DEEM 2019 & AMW2019**, *“Expressiveness of Matrix and Tensor Query Languages in terms of ML Operators”*. with P. Barceló, N. Higuera and J. Pérez.

JOURNAL PUBLICATIONS

- Theoretical Computer Science 2022**, *“On the expressiveness of Lara: A proposal for unifying linear and relational algebra”*. with P. Barceló, N. Higuera and J. Pérez.
- IOI Journal 2016**, *“Wavelet Trees for Competitive Programming”*. with R. Castro, N. Lehman and J. Pérez.

AWARDS

- **1st place** in Latin American Contest of Master theses in Artificial Intelligence IEEE LA-CCI.
- **Outstanding student and young researcher**, prize given by University of Chile, 2018, 2019, 2020.
- **1st place** in Chile at the ACM-ICPC South American finals 2018.

- **29th place** worldwide, out of more than 4000 teams in the IEEEExtreme 12.0 competition.
- **1st place** in the Chilean Programming Torunament (TCP, ACM - ICPC) 2017, 2018
- **1st place** in Chilean high school Robotics Competition 2013 (Lego NXT)

PROGRAMS AND INSTITUTIONS

Simons Institute, UC Berkeley, 2022, visiting graduate student at the *Data-driven Decision Processes* program.

IMFD Chile (Millennium Institute for Foundational Research on Data), as a supported undergraduate student, master student and young researcher throughout 2018-2021.

TALKS AND PRESENTATIONS

1. **Invited talk at Stanford University, Oct. 2022**, invited by professor Li-Yang Tan. “*Power to computers, Power to the people: from computer-aided mathematics to formal explainability*”.
2. **NeurIPS’22 recorded talk, Oct. 2022**, “*Augmenting Online Algorithms with ε -Accurate Predictions*”.
3. **NeurIPS’22 recorded talk, Oct. 2022**, “*On Computing Probabilistic Explanations for Decision Trees*”.
4. **SAT’22 conference talk, Aug 2022.**, “*The Packing Chromatic Number of the Infinite Square Grid is at Least 14*”.
5. **Invited speaker at LMML@FLOC workshop, July 2022.**, “*The Exciting Theory of Formal Explanations*”.
6. **NeurIPS’21@Paris, spotlight talk, Dec. 2021**, “*Foundations of Symbolic Languages for Model Interpretability*”.
7. **NeurIPS’21 spotlight recorded talk, Oct. 2021**, “*Foundations of Symbolic Languages for Model Interpretability*”.
8. **NeurIPS’20 recorded talk, Oct. 2020**, “*Model Interpretability through the lens of Computational Complexity*”.

SOFTWARE ENGINEERING EXPERIENCE

Facebook

Software Engineering Intern

July 2019 - October 2019

Menlo Park, CA

- Implemented a backend for an internal visualization framework allowing engineers to visualize and interact with computer vision models over video data. Coded in C++.
- Received a return offer for a full-time position.

MyJobGlasses

Software Engineering Intern (Part-time)

September 2017 - January 2018

Paris, France

- Implemented a customized chat-bot for their website, that saves time for MJG employees and increases the rate of successful meetings organized by the platform. Designed the NLP architecture.

khipu

Software Engineering Intern

July 2017 - September 2017

Santiago, Chile

- Created *Snow*, an anomaly detection system over transaction data. *Snow* takes data in real time, process it and renders a final visualization that helps employees detect problems earlier and more easily.

Google

Google Student Ambassador

March 2015 - December 2015

Santiago, Chile

- Liaison between Google and University of Chile; evangelized Google products, organized technical talks, campus events, and promoted job opportunities, ran social media for the Google Student Ambassadors program.

TEACHING EXPERIENCE

Head TA'ed: *Complexity and Computability, Design and Analysis of Algorithms, Discrete Math, Theory of Computation, Introduction to Programming, Algorithms and Data Structures, Databases, Programming Languages, and Workshop for Competitive Programming.*

SKILLS

Programming Skills	C++, Python, Java, Racket, SQL, Javascript (NodeJS, React)
Interests	Automated Reasoning, Complexity, Algorithms, Database theory, ML & AI, Logic
Languages	English, French, Spanish, German (basic), Italian (basic), Portuguese (basic)

PERSONAL INFORMATION

Full name: Bernardo Aníbal Subercaseaux Roa

Date of birth: 21st of November, 1995.

Nationality: Chilean.

Residency: United States, under F1 Visa status.

Civil status: Single.

Driver's license: Chilean license class B.