

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

- TACAS 2022**, “*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 July 2019 - October 2019
Software Engineering Intern 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 September 2017 - January 2018
Software Engineering Intern (Part-time) 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.

kipu July 2017 - September 2017
Software Engineering Intern 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 March 2015 - December 2015
Google Student Ambassador 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.