

Pablo Ubilla Pavez

Resume

+569 9546 2156
✉ pabloubilla@ug.uchile.cl
in [pablo-ubilla-pavez](#)

Education

- 2024 **MSc Ecology and Data Science**, *University College London*
Grade: Distinction, Dean's List
- 2023 **Master in Operations Management**, *Universidad de Chile*
Grade: 6.9/7.0, Highest Honours, Ranked 1st out of 15
- 2023 **Professional Degree in Industrial Engineering**, *Universidad de Chile*
Grade: 7.0/7.0, Highest Honours, Ranked 1st out of 174
- 2022 **Bachelor in Industrial Engineering**, *Universidad de Chile*
Grade: 6.2/7.0, Highest Honours, Ranked 3rd out of 142
- 2022 **Exchange Program**, *Universiteit Leiden*
Reinforcement Learning, Natural Language Processing

Research Interests

Machine learning, statistics, optimization, and their application to different domains (e.g., ecology, sustainability, elections, human behaviour)

Research Experience

- 2024 **Master's Thesis**, *University College London*, Supervisor: Daniel Maynard
How many types of trees are there? An approach using consensus clustering
 - Conducted unsupervised clustering using Gaussian Mixture Models, optimizing the number of clusters with BIC
 - Applied consensus clustering with resampling from the empirical error distribution
 - Compared to taxonomic groups, showing evidence for convergent evolution
- 2023 **Master's Thesis**, *Universidad de Chile*, Supervisor: Charles Thraves
Outlier detection for multicandidate elections with demographic groups [pdf]
 - Developed EM-algorithm approximations to solve the Ecological Inference problem
 - Applied mixed-integer programming for demographic aggregation
 - Produced automatized report for Chilean election authorities
- 2021 **Research Assistant**, *Complex Engineering Systems Institute*
Adaptive questionnaire with Machine Learning
 - Used ML imputation methods to estimate conditional probabilities from incomplete data
 - Optimized question selection with dynamic programming and greedy approaches using variance and entropy
 - Revisited in 2024 to apply Reinforcement Learning using prediction error as a proxy

Preprints

Thraves, Charles and Ubilla, Pablo, **A Fast Ecological Inference Algorithm for the RxC case** (2024). Available at SSRN: <https://ssrn.com/abstract=4832834>

Work Experience

- Current **Data Analyst**, *Airnguru*, Remote
- Developing dynamic pricing automation using Google Cloud services
 - Market simulation to test pricing strategies
- 2023 **Consultancy**, *Municipalidad de Vitacura*, Santiago
- Estimated street-level waste collection using GPS data and truck collection modelling
 - Optimized truck routes and daily street clusters using OR-tools to balance waste load
 - Achieved a 60% reduction in greatest time discrepancy
- 2020 **Intern**, *Fundación Tierra Viva*, Santiago
- Contributed to Chile's government environmental summary, focusing on citizen science
 - Managed databases, designed conditional surveys, and diffusion campaign

Teaching Experience

(*Term season vary depending on the hemisphere)

- 2023–2024 **Postgraduate Teaching Assistant**, *University College London*
MSc Computational Finance: Financial Engineering (Fall 2023), Applied Computational Finance (Spring 2024)
- 2020–2023 **Teaching Assistant**, *Universidad de Chile*
Industrial Engineering: Modelling and Optimization (Fall 2023, Fall 2020), Decisions Under Uncertainty (Spring 2022, Spring 2021), Game Theory and Strategy (Spring 2021), Probabilities (Fall 2021), Operations Research (Fall 2021, Spring 2020)
- 2019–2022 **Exam Assistant**, *Universidad de Chile*
Industrial Engineering: Probabilities (Fall 2022), Information Engineering (Fall 2022), Modelling and Optimization (Spring 2019)
Mathematics Engineering: Introduction to Calculus (Fall 2020), Introduction to Algebra (Spring 2019), Probabilities and Statistics (Fall 2019)
- 2023 **Instructor**, *Universidad Finis Terrae*
Industrial Engineering: Stochastic Models (Fall 2023)
- 2021–2022 **Teaching Assistant**, *Universidad Adolfo Ibáñez*
Industrial Engineering: Operations Research (Spring 2021, Summer 2022)

Awards & Scholarships

- 2024 **Best Presentation Prize**, *MSc Ecology and Data Science UCL*
- 2024 **Distinguished Master's Graduate Award**, *Postgraduate Engineering School UCH*
- 2021 **Best Teaching Assistant**, *Industrial Engineering Department UCH*
- 2023 **Masters Abroad Scholarship**, *Government Funding Agency (ANID)*, (Fully funded)
- 2022 **Academic Excellence Scholarship**, *MSc Operations Management UCH*
- 2022 **International Mobility Scholarship**, *Santander Bank*
- 2018–2021 **Outstanding Student**, *Faculty of Physics and Mathematics UCH*

Talks & Posters

- 2024 **A Fast Ecological Inference Algorithm for the RxC case (Talk)**, *Bangor, Wales*
Operational Research Society 66
- 2025 **A Fast Ecological Inference Algorithm for the RxC case (Poster)**, *Pucón, Chile*
Workshop in Management Science (Scheduled)
- 2024 **How many trees are there? An approach using consensus clustering**, *Cardiff, Wales*
British Ecological Society Macroecology
- 2024 **A novel framework for optimized sensor deployment in biodiversity monitoring**,
Surrey, England
Surrey Wildlife Trust Showcase

Development

- 2023 **XVIII Summer School in Discrete Mathematics**, *Instituto de Sistemas Complejos de Valparaíso*
High-chromatic graphs, Provable Algorithms for Data Mining and Machine Learning, and Linear Programming
- 2020 **9th Winter School in Engineering Systems**, *Universidad de Chile*
Black swan in power systems, Stackelberg games in security, AI challenges in big data

Skills

P. Languages	Python, R, SQL, MATLAB
Mach. Learn.	TensorFlow, PyTorch, Keras, Scikit-Learn, Gym
Optimization	Gurobi, OR-Tools, CVXPY, PuLP
Other	Git, L ^A T _E X, HPC

Languages

English	Advanced	TOEFL iBT 112/120, IELTS 8/9
Spanish	Native	

Miscellaneous

- Participated in music bands and societies, performing at events and concerts at universities in both Chile and London
- Earned a Music Production Certificate from Projazz
- Motivated by rock climbing since 2023