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*
2023 **Master in Operations Management**, *Universidad de Chile*
2023 **Professional Degree in Industrial Engineering**, *Universidad de Chile*
2022 **Bachelor in Industrial Engineering**, *Universidad de Chile*
2022 **Exchange Program**, *Universiteit Leiden*

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 **Dean's List (top 5%)**, *MSc Ecology and Data Science UCL*

2024 **Top Graduate Award**, *Master's Operations Management UCH*

2021 **Best Teaching Assistant**, *Industrial Engineering Department UCH*

2023 **Masters Abroad Scholarship**, *Government Funding Agency (ANID)*, (Fully funded)

2022 **Academic Excellence Scholarship**, *Master's 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

Skills

P. Languages	Python, R, SQL, MATLAB
Mach. Learn.	TensorFlow, PyTorch, Keras, Scikit-Learn, Gym
Optimization	Gurobi, OR-Tools, CVXPY, PuLP
Other	Git, LaTeX, 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