

Pablo Pascual Cobo

✉ pablopascualcobo@gmail.com 🔗 pablopasc.github.io in pablo-pascual-cobo 🌐 PabloPasc

Research Interests

Information Theory, Coding Theory, Communications, High-Dimensional Statistics, Compressed Sensing, Statistical Learning.

Research and Education

Postdoctoral Researcher	Institute of Science and Technology Austria (ISTA) <ul style="list-style-type: none">Working within the Mondelli and Robinson groups.Developing high-dimensional inference tools for biological applications.	1 Apr 2026 – 31 Mar 2028
Postdoctoral Research Associate	Department of Engineering, University of Cambridge , <ul style="list-style-type: none">Designed sparse regression codes using approximate message passing for lossy compression.Investigated source coding using diffusion-based sampling.	May 2025 – Jan 2026
PhD	Churchill College, University of Cambridge , Spatial Coupling for High-Dimensional Estimation <ul style="list-style-type: none">Supervised by Prof. Ramji Venkataramanan.Applied information-theoretic and coding techniques to tackle high-dimensional estimation problems.Derived novel approximate message passing algorithms for generalized linear models, large user networks and group testing.	Oct 2020 – Feb 2025
BA MEng	Churchill College, University of Cambridge , Engineering <ul style="list-style-type: none">Specialized in Information Engineering.Courses included: Information Theory, Control, Computer Vision, Image Processing, Statistical Signal Analysis, Optimization.MEng Thesis: <i>Algorithms for Matrix Estimation</i>, First Class.	Oct 2016 – Jun 2020
	English School of Asturias , Pruvia de Abajo, Asturias, Spain <ul style="list-style-type: none">5 International A Levels at grade A*.	Sept 2004 - Jun 2016

Work Experience

University of Cambridge , Undergraduate Teaching <ul style="list-style-type: none">Small group supervisions (2-4 students) and examples classes (15-25 students) to 3rd year Engineering undergraduate students, courses on Information Theory and Coding and Data Transmission.Supervised Audio Modem 3rd year practical project, 2nd year Spectrum Analysis and Data Science labs.	Cambridge, UK Oct 2020 – Mar 2025
Roku Inc. , Software Engineer Intern <ul style="list-style-type: none">Took part in a project to develop a new operating system for TVs.Developed new software for the TV's tuner user interface.Learned to use project management tools such as JIRA or Confluence and worked	Cambridge, UK Jun 2019 – Sept 2019

on Brightscript and C programming languages.

Maths Builders, UROP project, Cambridge University Engineering Department

- Developed content for a mobile app to help GCSE Maths students.

Cambridge, UK
Jul 2017 – Sept 2017

Publications

P. Pascual Cobo, K. Hsieh, and R. Venkataramanan. [Bayes-optimal estimation in generalized linear models via spatial coupling](#). IEEE Transactions on Information Theory, 70 (11):8343–8363, 2024.

P. Pascual Cobo, K. Hsieh, and R. Venkataramanan. [Bayes-optimal estimation in generalized linear models via spatial coupling](#). In Proc. IEEE International Symposium on Information Theory, pages 773–778, 2023.

Xiaoqi Liu, **Pablo Pascual Cobo**, and Ramji Venkataramanan. [Many-user multiple access with random user activity: Achievability bounds and efficient schemes](#). IEEE Transactions on Information Theory, 72 (1):383–414, 2026.

X. Liu, **P. Pascual Cobo**, and R. Venkataramanan. [Many-user multiple access with random user activity](#). In Proc. IEEE International Symposium on Information Theory, 2024.

N. Tan, **P. Pascual Cobo**, J. Scarlett, and R. Venkataramanan. [Approximate message passing with rigorous guarantees for pooled data and quantitative group testing](#). SIAM Journal on Mathematics of Data Science, 6(4):1027–1054, 2024.

N. Tan, **P. Pascual Cobo**, and R. Venkataramanan. [Quantitative group testing and pooled data in the linear regime with sublinear tests](#). IEEE Transactions on Information Theory, 71 (11):9074–9099, 2025.

N. Tan, **P. Pascual Cobo**, and R. Venkataramanan. [Quantitative group testing and pooled data with sublinear number of tests](#). International Zurich Seminar on Information and Communication, 2024.

P. Pascual Cobo. [Spatial Coupling for High-Dimensional Estimation](#). PhD thesis, Dept. Eng., Cambridge Univ., Cambridge, UK, 2024.

Reviewer: IEEE Transactions on Information Theory, IEEE Transactions on Signal Processing, IEEE International Symposium on Information Theory (ISIT)

Scholarships and Awards

EPSRC Doctoral Training Partnership PhD Studentship award

Churchill College scholar 2018, 2019, honorary scholar in 2020

Additional Skills and Hobbies

Languages: Fluent in English and Spanish and advanced level of French

Programming Languages: Python, C++, Matlab, Brightscript

Sports (football, basketball, tennis) lover, avid **reader** and **traveler**

Referees

Prof. Ramji Venkataramanan (rv285@cam.ac.uk, Department of Engineering, Cambridge)

Prof. Albert Guillén i Fàbregas (albert.guillen@eng.cam.ac.uk, Department of Engineering, Cambridge)

Prof. Nicolas Macris (nicolas.macris@epfl.ch, École Polytechnique Fédérale de Lausanne, Switzerland)

Mr Pete Boyt (pboyt@roku.com, Project manager at Roku Inc., 2 Cambridge Science Park Rd, Cambridge CB4 0AF)