Paul Rognon-Vael

PhD. Student (4th Year)
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EDUCATION

PhD in Statistics, Universitats Pompeu Fabra and Politècnica de Catalunya **2021- exp. Oct. 2025**

- *Advisors: David Rossell, Piotr Zwiernik.*

Master's in Statistics, Universitats de Barcelona and Politècnica de Catalunya **2021**

- *Average grade: 9.49/10. Valedictorian (rank 1st). Awarded the Accenture-MESIO prize for best academic records.*

Postgraduate Diploma in Mathematical Statistics, Universidad de Buenos Aires **2019**

- *Average grade: 9.2/10.*

Bachelor's in Applied Mathematics, Université Paris I Panthéon – Sorbonne **2015**

- *Summa cum laude ("mention très bien").*

Conference courses / workshops attended: Introduction to optimal transport for Bayesian statistics (ISBA, Venice, 2024), Algebraic Statistics and Our Changing World (IMSI, Chicago, 2023), Oxford-Bocconi StatML 2023 summer school - Reinforcement learning and Optimization.

RESEARCH INTERESTS

My current work focuses on **high-dimensional inference** at crossroads between Bayesian and frequentist theory. One line of work has been designing better penalty functions for settings where external / prior information is available on the sparsity of the vector of parameters e.g. data integration, sequential problems. A second line of work is **sparse bandit** theory. I study regret bounds under sparsity assumption in non parametric settings. From my professional and academic experience, I also developed interests in: **nonparametrics**, **causality**, **graphs and networks**, **extreme values** and **learning under fairness constraints**.

PUBLICATIONS

Preprints:

- Flynn H., Olkhovskaya J., **Rognon-Vael P.** Sparse Nonparametric Contextual Bandits.
- **Rognon-Vael P**., Rossell D., Zwiernik P., Improving variable selection properties by leveraging external data.

Article(s):

- García-Pérez R., Ramirez J.M., …, **Rognon P. J.** , …, Melé M. (2023), "The landscape of expression and alternative splicing variation across human traits", ***Cell Genomics***, 3(1), 100244.

TALKS

- CMStatistics 2024 - Organized session: Advances in Bayesian high-dimensional inference (Dec. 2024).
- ISBA 2024 - Invited session: *Theory and methods for data integration* (Jun. 2024).
- ICSDS 2023 - Student travel award session: *External information and blockwise regularisation for sparsity recovery* (Dec. 2023).
- SEIO 2023 Congress - invited session: *Statistical inference with external information: high-dimensional data integration* (Nov . 2023).

GRANTS, HONOURS AND AWARDS

- Fundació Ferran Sunyer i Balaguer scholarship: awarded based on academic merit
- ICSDS 2023 Student Travel Award: awarded to best student submissions.
- Catalan Government PhD Scholarship (AGAUR FI) 2022: awarded based on academic merit.
- MESIO-Accenture award to the highest ranking student 2021.
- Catalan Government Mobility Scholarship (MOBINT) 2021: awarded based on academic merit.
- Santander Erasmus Scholarship 2020: awarded based on academic merit.
- MESIO-Accenture Scholarship 2019: awarded based on academic merit.

EDITORIAL AND ORGANIZATIONAL ACTIVITIES

- Reviewer, Uncertainty in Artificial Intelligence 2024-2025.
- Support to the organization of Mathematics Aspects of Learning - 20 years later, 2024, Barcelona.

RESEARCH EXPERIENCE

Research intern, Barcelona Supercomputing Centre, TFG Lab **2021**

- *Investigated interaction effects between phenotypes in GTEx gene expression and alternative splicing data.*
- *Researched methodologies for the joint analysis of GTEx gene expression and histological images.*

TEACHING EXPERIENCE

Instructor, Barcelona School of Economics **2021 - 2024**

- *30-hour introductory course in probability, statistics and algebra of the Master´s in Data Science,*
- *Redeveloped and extended the course material.*

Teaching Assistant, Barcelona School of Economics, Data Science Center **2023 - 2024**

- *5-hour seminar on Bayesian and frequentist high-dimensional regression and causal inference for the course Statistical Machine Learning For Large Unstructured Data course of the Summer School.*
- *Developed the course material.*

Instructor, Barcelona School of Economics, Data Science Center **2022 - 2023**

- *8-hour introductory course in Python and R programming.*

Teaching Assistant, Barcelona School of Economics **2021 - 2023**

- *12-hour seminar for the Statistical Inference and Modelling course of the Master´s in Data Science,*
- *Developed the course material.*

PROFESSIONAL EXPERIENCE

Freelance Consultant, Kevin D. Oden & Associates **2020-2023**

- *Validated causality-based fair lending, linear regression credit stress testing, liquidity risk models for small and medium US banks.*

Junior (2016-2018) and Senior (2018-2019) Quantitative Analyst, Crisil (S&P Global) **2016-2019**

- *Validated time series, linear regression PPNR, operational risk loss distribution approach, logistic regression credit risk, market risk models for major US and European banks.*
- *After getting promoted, trained and supervised a junior analyst.*

PROGRAMMING AND LANGUAGE SKILLS

Programming:

- ***R, Python*** *(including Tensorflow, PyTorch, NumPyro): advanced.*
- ***SAS, SQL****: intermediate.*
- ***Bash, PySpark, Hadoop, Airflow, Docker, VBA****: basic.*

Languages:

- ***French****: native.*
- ***English:*** *fluent (TOEFL iBT 111/120)*
- ***Spanish:*** *fluent.*
- ***Catalan:*** *fluent (certified B1).*

REFERENCES

David Rossell, Ramón y Cajal Researcher & BSE Data Science Center Director
Department of Economy and Business
Universitat Pompeu Fabra, Spain
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Piotr Zwiernik, Associate Professor
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Marta Melé, Leading Researcher
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