

Thiago Rodrigo Ramos

Assistant Professor of Statistics
Federal University of São Carlos (UFSCar), Brazil
thiagorr@ufscar.br

[Personal website](#) | [Google Scholar](#)

Research Interests

Statistical machine learning; uncertainty quantification; conformal prediction; concentration inequalities; applications in biomedicine, materials science and genomics.

Academic Appointments

Assistant Professor	Jul 2024–present
<i>Department of Statistics, Federal University of São Carlos (UFSCar)</i>	<i>São Carlos, Brazil</i>

Member of the [Statistical Machine Learning Lab \(SMALL-UFSCar\)](#).

Faculty member of the Interinstitutional Graduate Program in Statistics (PIPGEs, UFSCar/USP).

FAPESP Postdoctoral Researcher	Jan 2024–Jul 2024
<i>Institute of Mathematics and Computer Sciences, University of São Paulo (ICMC-USP) São Carlos, Brazil</i>	

FAPERJ Postdoctoral Researcher	Jan 2023–Jul 2023
<i>Institute for Pure and Applied Mathematics (IMPA)</i>	<i>Rio de Janeiro, Brazil</i>

Education

Ph.D. in Mathematics	2018–2022
<i>Institute for Pure and Applied Mathematics (IMPA)</i>	<i>Rio de Janeiro, Brazil</i>

Thesis: *Boosting and Concentration of Measure Methods in Machine Learning*.

Advisor: Roberto I. Oliveira; co-advisor: Paulo Orenstein.

M.Sc. in Mathematics	2016–2018
<i>Institute of Mathematics and Computer Sciences, University of São Paulo (ICMC-USP) São Carlos, Brazil</i>	

Thesis: *Ergodic Theory of Homogeneous Flows and Ratner's Theorems*. Advisor: Daniel Smania.

B.Sc. in Mathematics	2012–2015
<i>Institute of Mathematics and Computer Sciences, University of São Paulo (ICMC-USP) São Carlos, Brazil</i>	

Teaching, Mentoring, and Open Materials

Graduate teaching includes *Machine Learning* and *Stochastic Simulation*; undergraduate teaching includes *Statistical Learning*, *Statistical Programming*, and *Data Mining*. Currently supervising two M.Sc. students and three undergraduate researchers; completed the supervision or co-supervision of two M.Sc. students and five undergraduate capstone students. **Open materials:** [lecture and research notes](#) on machine learning, simulation, concentration inequalities, and related topics.

Peer-Reviewed and Accepted Publications

- L. M. C. Cabezas, G. P. Soares, **T. R. Ramos**, R. B. Stern, and R. Izbicki. “Conformal Calibration of Statistical Confidence Sets.” *Transactions on Machine Learning Research*, 2026.
- **T. R. Ramos**, H. Graziadei, and L. M. C. Cabezas. “Conformal Prediction via Transported Beta Laws.” Accepted at the *15th Symposium on Conformal and Probabilistic Prediction with Applications (COPA)*, 2026. To appear in PMLR 329.
- **T. R. Ramos**, A. Fröhlich, D. Perazzo, and M. Pontil. “Drift-Aware Uncertainty Quantification via a Functional Spectral-Newton Method.” CAO Workshop at ICLR, 2026.
- L. M. C. Cabezas, V. S. Santos, **T. R. Ramos**, and R. Izbicki. “Epistemic Uncertainty in Conformal Scores: A Unified Approach.” *UAI*, 2025.
- A. Fröhlich, **T. R. Ramos**, G. M. C. dos Santos, I. P. C. Buzatto, R. Izbicki, and D. G. Tiezzi. “PersonalizedUS: Interpretable Breast Cancer Risk Assessment with Local Coverage Uncertainty Quantification.” *AAAI*, 2025.
- R. I. Oliveira, P. Orenstein, **T. R. Ramos**, and J. V. Romano. “Split Conformal Prediction and Non-Exchangeable Data.” *Journal of Machine Learning Research*, 25(225):1–38, 2024.
- **T. R. Ramos**, R. L. Schuller, A. A. Okuno, L. Nissenbaum, R. I. Oliveira, and P. Orenstein. “BlockBoost: Scalable and Efficient Blocking through Boosting.” *AISTATS*, 2024.
- W. Hassan, M. M. Cabral, **T. R. Ramos**, A. Castelo Filho, and L. G. Nonato. “Modeling and Predicting Crimes in the City of São Paulo Using Graph Neural Networks.” *BRACIS 2024*, LNCS 15414, 2025.
- D. Csillag, L. M. Paes, **T. R. Ramos**, J. V. Romano, R. Schuller, R. B. Seixas, R. I. Oliveira, and P. Orenstein. “AmnioML: Amniotic Fluid Segmentation and Volume Prediction with Uncertainty Quantification.” *AAAI*, 2023.
- D. Csillag, C. Piazza, **T. R. Ramos**, J. V. Romano, R. I. Oliveira, and P. Orenstein. “ExactBoost: Directly Boosting the Margin in Combinatorial and Non-decomposable Metrics.” *AISTATS*, 2022.

Preprints and Working Papers

- M. Barreto, M. de Castro, **T. R. Ramos**, D. Valle, and R. Izbicki. “LOCUS: A Distribution-Free Loss-Quantile Score for Risk-Aware Predictions.” arXiv:2603.01971, 2026.
- V. Santos, V. Coscrato, L. Cabezas, R. Izbicki, and **T. R. Ramos**. “LoBoost: Fast Model-Native Local Conformal Prediction for Gradient-Boosted Trees.” arXiv:2602.22432, 2026.
- L. M. C. Cabezas, V. S. Santos, **T. R. Ramos**, P. L. C. Rodrigues, and R. Izbicki. “CP4SBI: Local Conformal Calibration of Credible Sets in Simulation-Based Inference.” arXiv:2508.17077, 2025.
- L. P. Amaral, L. M. C. Cabezas, **T. R. Ramos**, and G. H. G. A. Pereira. “Conformal Prediction for Compositional Data.” arXiv:2511.18141, 2025.
- G. L. Thomaello, T. Y. B. Agüena, E. T. Costa, R. B. Rosante, **T. R. Ramos**, D. A. Zuanetti, and E. D. Zanotto. “From Patents to Dataset: Scraping for Oxide Glass Compositions and Properties.” arXiv:2511.16366, 2025.

Research Funding and Fellowships

- **CNPq Universal Research Grant**, project 403458/2025-0, team member, 2025–present. Project: *Statistical Methods Applied to Genomic Data*. Total award: R\$132,790.
- **FAPESP Undergraduate Research Fellowship**, project 2025/02033-0, supervisor, 2025–present. Project on machine learning and data extraction for oxide-glass refractive-index data, developed within the CeRTEV research center.
- **FAPESP Postdoctoral Fellowship**, project 2023/15618-1, fellow, 2024. Project on geospatial representations and latent crime mapping, supervised by Prof. Luis Gustavo Nonato.
- **FAPERJ Young Researcher Fellowship**, project 205.525/2022, fellow, 2023. Research in machine learning and computational statistics at IMPA.

Selected Talks and Conference Presentations

- Invited speaker, *How Can Mathematics Contribute to AI?*, IME-USP, São Paulo, Aug 10–12, 2026.
- *Drift-Aware Uncertainty Quantification via a Functional Spectral-Newton Method*, CAO Workshop at ICLR, Rio de Janeiro, 2026.
- Invited speaker, VI Brazilian Congress of Young Researchers in Pure and Applied Mathematics and Statistics; *Learning Conditional Expectation Operators via a Functional Newton Method*, Teresina, 2026.
- Invited mini-conference speaker, 70th Annual Meeting of the Brazilian Region of the International Biometric Society (RBras), 2026.
- *Epistemic Uncertainty in Conformal Scores: A Unified Approach*, UAI (oral presentation), Rio de Janeiro, 2025.
- *BlockBoost: Scalable and Efficient Blocking through Boosting*, AISTATS, Valencia, Spain, 2024.

Academic Service

- Organizing committee member and speaker, Workshop on Probabilistic and Statistical Methods (WPSM), 2026.
- Ad hoc reviewer for *Computational Materials Science*, *Journal of Alloys and Compounds*, *Journal of Non-Crystalline Solids*, and the *Journal of the American Statistical Association (JASA)*; conference reviewer for NeurIPS, ICML, ICLR, AISTATS, AAAI, and UAI.

Awards

- **Alexey Chervonenkis Award for Best Paper**, COPA 2026.
- **IAAI Deployed Application Award**, AAAI 2023, for *AmnioML*.
- **Oral Paper Selection**, UAI 2025, for *Epistemic Uncertainty in Conformal Scores*.
- **Media coverage**: *AmnioML* featured in *Folha de S.Paulo* in an article on AI for pregnancy care, September 2021.