Curriculum Vitae **Omar Rivasplata**

E-mail: omar.rivasplata@manchester.ac.uk
Personal webpage

Senior Lecturer (Associate Professor)
University of Manchester

AREAS OF INTEREST

AI. Machine Learning. Statistical Learning Theory. Mathematics. Probability and Statistics.

CURRENT APPOINTMENT

Senior Lecturer in Machine Learning, Department of Computer Science, University of Manchester.

OTHER APPOINTMENTS AND AFFILIATIONS

Member of the London Mathematical Society (LMS).
Member of the European Laboratory for Learning and Intelligent Systems (ELLIS).
Fellow of the Institute of Mathematics and its Applications (IMA).
Fellow of the Royal Statistical Society (RSS).

EDUCATION

PhD in Statistical Learning	University College London, UK, 2022.
PhD in Mathematics	University of Alberta, Canada, 2012.
MSc in Mathematics	University of Alberta, Canada, 2005.
Título in Mathematics	Pontificia Universidad Católica del Perú, 2002.
BSc in Mathematics	Pontificia Universidad Católica del Perú, 2001.

PROFESSIONAL HISTORY

Senior Research Fellow, Statistical Science, University College London	Feb 2022 - Jun 2024
Research Associate, Mathematics, University College London	Oct 2021 - Jan 2022
Research Scientist Intern, DeepMind	Jun 2018 - Jun 2021
Research Scholar, Computer Science, University College London	Nov 2017 - Oct 2021
Research Assistant, Computing Science, University of Alberta	Sep 2016 - Oct 2017
Sessional Lecturer, University of Alberta	2015 - 2016
Postdoctoral Fellow, Physics, University of Alberta	2013 - 2015
Postdoctoral Fellow, Math & Stats, University of Alberta	2012 - 2013
Sessional Lecturer, Concordia University of Edmonton	2009 - 2015
Sessional Lecturer, University of Alberta	2005 - 2013
Research Assistant, Math & Stats, University of Alberta	2006 - 2007
Sessional Lecturer, University of Alberta	Fall 2005
Sessional Lecturer, Pontificia Universidad Católica del Perú	2006
Graduate Teaching Assistant, University of Alberta	2002 - 2005
Sessional Lecturer, Pontificia Universidad Católica del Perú	2001 - 2002
Teaching Assistant, Pontificia Universidad Católica del Perú	1999 - 2002

ACADEMIC HONORS, AWARDS, SCHOLARSHIPS

- DeepMind Sponsored Scholarship, University College London, 2017 - 2021.
- Queen Elizabeth II Graduate Scholarship, University of Alberta, 2016.
- J.M. Mitchell Graduate Scholarship, University of Alberta, December 2009.
- J.M. Mitchell Graduate Scholarship, University of Alberta, December 2007.
- Provost Doctoral Entrance Award, University of Alberta, 2006. Renewed 2007.
- J.M. Mitchell Graduate Scholarship, University of Alberta, November 2004.
- Eoin L. Whitney Scholarship, University of Alberta, June 2003.
- Graduate Teaching Assistant Scholarship, University of Alberta, 2002.
- R. P. Dintilhac Studentship, Pontificia Universidad Católica del Perú, 1995-1996, 1997-2000.

ACADEMIC VISITS

Visiting Research Student at the Weizmann Institute of Science, Israel, March 1 - May 30, 2008. Sponsored by the RTN European Network: Phenomena in High Dimensions.

TALKS - SELECTED

- Semi-supervised batch learning from logged data. Contributed talk at the Machine Learning in Poland (ML in PL) 2023 conference, Warsaw, to be on 27 October 2023.
- Towards self-certified learning: Probabilistic neural networks trained by PAC-Bayes with Backprop. Contributed talk at the Machine Learning in Poland (ML in PL) 2022 conference, Warsaw, 6 November 2022.
- Tighter risk certificates for neural networks. Invited talk at the Bristol Sequential Learning Workshop. University of Bristol, School of Mathematics, June 23, 2022.
- PAC-Bayes Analysis Beyond the Usual Bounds. Invited talk (virtual) at the Statistics Section, Imperial College London, June 11, 2021.
- PAC-Bayes Analysis Beyond the Usual Bounds. Invited talk (virtual) at the Department of Computer Science, University of Copenhagen, May 10, 2021.
- Tighter risk certificates for neural networks. Invited talk (virtual) at the Department of Statistics, University of Oxford, October 28, 2020.
- Tighter risk certificates for neural networks. Invited talk (virtual) at the Mathematical Institute for Data Science (MINDS), Johns Hopkins University, September 04, 2020.
- PAC-Bayes with Backprop: Tighter risk certificates for neural networks. Invited talk (virtual) at the Data-centric Engineering Reading Group, Alan Turing Institute, April 29, 2020.
- PAC-Bayes bounds for stable algorithms with instance-dependent priors. Invited talk at the MURI Annual Meeting, Imperial College London, October 11, 2018.
- Smallest Singular Value of Sparse Random Matrices. Invited talk at the Department of Mathematics and Statistics, University of North Carolina at Greensboro, August 19, 2015.

TUTORIALS

- Statistical Learning Theory: A Hitchhiker's Guide. NeurIPS 2018 Tutorial. Prepared and delivered jointly with J. Shawe-Taylor. Slides and video available in the conference website.

PAPERS IN CONFERENCES & JOURNALS

- I. Kuzborskij, C. Szepesvári, O. Rivasplata, A. Rannen-Triki, R. Pascanu. On the Role of Optimization in Double Descent: A Least Squares Study. In *Neural Information Processing Systems [NeurIPS]* 2021.
- M. Pérez-Ortiz, O. Rivasplata, C. Szepesvári, J. Shawe-Taylor. Tighter risk certificates for neural networks. *JMLR*, **22**, 227 (2021).
- O. Rivasplata, I. Kuzborskij, C. Szepesvári, J. Shawe-Taylor. PAC-Bayes Analysis Beyond the Usual Bounds. In *Neural Information Processing Systems [NeurIPS]* 2020.
- L. Orseau, M. Hutter, O. Rivasplata. Logarithmic pruning is all you need. In *Neural Information Processing Systems [NeurIPS]* 2020.
- O. Rivasplata, E. Parrado-Henández, J. Shawe-Taylor, S. Sun, C. Szepesvári. PAC-Bayes bounds for stable algorithms with instance-dependent priors. In *Neural Information Processing Systems [NeurIPS]* 2018.
- A.E. Litvak and O. Rivasplata. Smallest singular value of sparse random matrices. *Studia Mathematica*, **212**, 3 (2012), 195-218.
- O. Rivasplata, J. Rychtar, and B. Schmuland. Reversibility for diffusions via quasi-invariance *Acta Univ. Carolin. Math. Phys.*, **48**, 1 (2007), 3-10.
- O. Rivasplata, J. Rychtar, and C. Sykes. Evolutionary games in finite populations. *Pro Mathematica*, **20**, 39/40 (2006), 147-164.
- O. Rivasplata and B. Schmuland. Invariant and reversible measures for random walks on $\mathbb{Z}$. *Pro Mathematica*, **19**, 37/38 (2005), 117-124.

WORKSHOP PAPERS

- G. Aminian, R. Vega, O. Rivasplata, L. Toni, M. Rodrigues. Semi-Counterfactual Risk Minimization via Neural Networks. *European Workshop on Reinforcement Learning*, 2022.
- M. Pérez-Ortiz, O. Rivasplata, E. Parrado-Henández, B. Guedj, J. Shawe-Taylor. Progress in Self-Certified Neural Networks. *NeurIPS 2021 Workshop – Bayesian Deep Learning*.
- A. Grabska-Barwińska, A. Rannen-Triki, O. Rivasplata, A. György. Towards better visual explanations for deep image classifiers. *NeurIPS 2021 Workshop – eXplainable AI for debugging and diagnosis*.
- M. Pérez-Ortiz, O. Rivasplata, C. Szepesvári, and J. Shawe-Taylor. Towards self-certified learning: Probabilistic neural networks trained by PAC-Bayes with Backprop. *NeurIPS 2020 Workshop – Beyond BackPropagation*.
- O. Rivasplata, I. Kuzborskij, C. Szepesvári, J. Shawe-Taylor. PAC-Bayes Analysis Beyond the Usual Bounds. *NeurIPS 2019 Workshop – Machine Learning with Guarantees*.

THESES

- PAC-Bayesian Computation. *PhD dissertation*, Statistical Learning, University College London, 2022.
- Smallest singular value of sparse random matrices. *PhD dissertation*, Mathematics, University of Alberta, 2012.
- Characterizations of reversibility for certain classes of finite and infinite dimensional diffusions. *Master Thesis*, Mathematics, University of Alberta, 2005.
- On repeated games with incomplete information (in Spanish). *Undergraduate Studies Thesis*, Mathematics, Pontificia Universidad Católica del Perú, 2002.

PEER-REVIEWING SERVICE

Conferences:

- UAI: Uncertainty in Artificial Intelligence. (Area Chair)
- AAAI Conference on Artificial Intelligence. (Area Chair)
- AISTATS: Artificial Intelligence and Statistics. (Area Chair)
- ALT: International Conference on Algorithmic Learning Theory. (Area Chair)
- COLT: Conference on Learning Theory. (Area Chair)
- ICML: International Conference on Machine Learning. (Reviewer)
- NeurIPS: Neural Information Processing Systems. (Reviewer)
- ICLR: International Conference on Learning Representations. (Reviewer)

Journals:

- Journal of Machine Learning Research. (Editorial Board Reviewer)
- Journal of Data-centric Machine Learning Research. (Action Editor)
- Transactions of Machine Learning Research. (Reviewer)
- Information and Inference: A Journal of the IMA. (Reviewer)
- Machine Learning Journal. (Reviewer)
- IEEE Transactions on Neural Networks and Learning Systems. (Reviewer)
- IEEE Transactions on Pattern Analysis and Machine Intelligence. (Reviewer)
- Electronic Journal of Statistics. (Reviewer)
- JSTP: Journal of Statistical Theory and Practice. (Reviewer)

STUDENT SUPERVISION

- Summer 2023: Supervised two industrial MSc projects for students of the Statistics and Data Science programmes, Department of Statistical Science, University College London.
- 2022/23: Supervised MSc projects for Year 4 Mathematics students, University College London.
- Summer 2022: Supervised MSc projects for students of the Machine Learning programme, Department of Computer Science, University College London.
- Summer 2021: Supervised MSc projects for students of the Machine Learning programme, Department of Computer Science, University College London.
- Summer 2014: Supervised an Undergrad Research Student project, Department of Physics, University of Alberta.

RESEARCH-ENABLING ACTIVITIES

- Lead of the research group 'Data, Environments, and Learners: Theory and Algorithms' (DELTA) at the Department of Statistical Science, University College London. One of the main activities being organising a series of talks with invited speakers from around the globe, who present on various topics in statistics and machine learning.
- Chaired the Computer Science Mini Conference, which hosted five 25 min talks by graduate students. University College London, May 03, 2019.

OUTREACH & VOLUNTEERING

- Volunteer mentor for the Deep Learning Indaba Mentorship Programme, 2021 - present.
- Volunteer mentor for DeepMind Scholars Interview Skills Day. February 21, 2020. Designed to enable students from diversity groups with skills for a job interview.
- Volunteer and Instructor at the Canadian Mathematical Society Summer Camp for Junior High students, University of Alberta, July 2016. Run a Probability Problem-Solving Session.

SOME EXTRACURRICULAR ACTIVITIES

- Spectator of concerts organized by the Edmonton Classical Guitar Society.
- Volunteer Assistant Instructor for Kodokwai Judo Club, 2014 - 2017.
- Volunteer Coach for Community League Soccer, throughout various seasons.

COMPUTER SKILLS

Mathematical Software: Matlab, Octave.
Statistical Software: R (environment for statistical computing and graphics).
Operating Systems: Linux, Mac OS X, Microsoft Windows.
Productivity: LibreOffice, Microsoft Office, LaTeX.
Programming: Python.

LANGUAGES

Spanish (first language), English (very high proficiency), French (working on it).

REFERENCES

Available upon request.

Last updated: July 1, 2024