

CURRICULUM VITAE – ROI NAVEIRO

PERSONAL INFORMATION

Roi Naveiro
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EDUCATION

PhD, *Cum Laude* and *International distinctions* (2016-2020). Advisors: David Ríos Insua (ICMAT - Institute of Mathematical Sciences from the Spanish Research Council, CSIC) and David Gómez-Ullate Oteiza (University of Cádiz & Complutense University of Madrid). PhD program: *Mathematical Engineering, Statistics and Operational Research*, Complutense University of Madrid.
Thesis title: *Contributions to the Security of Machine Learning*.

Masters degree in theoretical physics from the Complutense University of Madrid (2016-2017). Thesis advisor: David Gómez-Ullate Oteiza (ICMAT-CSIC & Complutense University of Madrid).
Thesis title: *Fraud Detection in Electronic Payments*.

Bachelor degree in physics from the University of Salamanca (2011-2015). Thesis advisor: David Rodríguez Entem (University of Salamanca).
Thesis title: *Resolution of the Nucleon-Nucleon scattering problem using the N/D method*.

JOB EXPERIENCES

2021 January → present Postdoctoral position at the Institute of Mathematical Sciences from the Spanish Research Council (ICMAT-CSIC) located in Madrid, Spain.

2021 January → present *Data-driven researcher* at Aitenea Biotech (spin-off from the Spanish National Research Council). <https://aitenea.com/>.

2016 October → 2020 October PhD student in the Statistics, Probability and Operations Research group at the Institute of Mathematical Sciences (ICMAT-CSIC) located in Madrid, Spain.

2019 September → 2020 May Co-founder of Komorebi AI Technologies, an AI start-up. <https://komorebi.ai/>.

2015 June → September 2015 Research assistant at the Astrophysical Institute of the Canary Islands (IAC) located in Tenerife, Canary Islands, Spain. Working for the project *Searching for star clusters in the dwarf irregular galaxy IC1613*.

2014 September → 2015 June Research assistant at the Institute of Fundamental Physics and Mathematics (IUFFyM) located in Salamanca, Spain. Working for the project *Resolution of Nucleon-Nucleon scattering with the N/D method*.

RESEARCH STAYS IN
NATIONAL AND
INTERNATIONAL
CENTERS

- 2019 July → 2019 December** Research stay at the Statistical and Applied Mathematical Sciences Institute (SAMSI) and the department of Statistical Science of Duke University, Durham (North Carolina).
- 2019 January** Research stay at University of Cádiz, Cádiz (Spain).
- 2018 August → 2018 December** Research stay at the department of Statistical Science of Duke University, Durham (North Carolina), working with Professor David L. Banks.

SCHOLARSHIP AWARDS

- 2018 September** Short term research scholarship awarded by the Spanish Ministry of Education for a research stay at Duke University, Durham (North Carolina).
- 2016 June** FPU scholarship awarded by the Spanish Ministry of Education for PhD studies.
- 2015 May** Research scholarship awarded by the Astrophysical Institute of the Canary Island (IAC) located in Tenerife, Spain.
- 2014 October** Research scholarship at the Institute of Fundamental Physics and Mathematics (IUFFyM) located in Salamanca, Spain. Awarded by the Spanish Ministry of Education.

PUBLISHED PAPERS

- Artificial Intelligence in Tribology: Design of new dispersants using artificial intelligence tools (2022). Campillo, N., Talavante, P., Ponzoni, I., Soto, A., Martínez, M. J., **Naveiro, R.**, et. al. *In 23rd International Colloquium Tribology: Industrial and Automotive Lubrication (p. 423). expert verlag.*
- Managing Driving Modes in Automated Driving Systems (2021). Ríos Insua, D., Caballero, W., & **Naveiro, R.** *Transportation Science.* (To appear).
- Modeling Ethical and Operational Preferences in Automated Driving Systems (2021). Caballero, W., & **Naveiro, R.** & Ríos Insua, D. *Decision Analysis.* <https://doi.org/10.1287/deca.2021.0441>
- Adversarial attacks against Bayesian forecasting dynamic models (2021). **Naveiro, R.** *Proceedings of the 22nd European Young Statisticians Meetings (EYSM 2021).* <https://www.eysm2021.panteion.gr/publications.html>
- AI in drug development: a multidisciplinary perspective (2021). Gallego, V., **Naveiro, R.**, Roca, C. et al. *Molecular Diversity.* <https://doi.org/10.1007/s11030-021-10266-8>
- Perspectives on Adversarial Classification (2020). Ríos Insua, D., **Naveiro, R.**, & Gallego, V. *Mathematics*, 8(11):1957. <https://doi.org/10.3390/math8111957>
- Adversarial Risk Analysis (Overview) (2020). Banks, D., Gallego, V., **Naveiro, R.**, & Ríos Insua, D. *WIREs Comput Stat*, e1530. <https://doi.org/10.1002/wics.1530>
- Hydroxycloquine for pre-exposure prophylaxis for SARS-CoV-2 (2020). Lopez de la Iglesia, J., Cubelos, N., **Naveiro, R.**, et. al. *Current Trends in Medicine.* <https://doi.org/10.47726/ctm.1003>

	<p>Adversarial Classification: An adversarial Risk Analysis approach (2019). Naveiro, R., Redondo, A., Insua, D. R., & Ruggeri, F. <i>International Journal of Approximate Reasoning</i>, 113: 133–148. https://doi.org/10.1016/j.ijar.2019.07.003</p> <p>Large Scale Automated Forecasting for Monitoring Network Safety and Security (2019). Naveiro, R., Rodríguez, S., & Ríos Insua, D. <i>Applied Stochastic Models in Business and Industry</i>, 35: 431–447. https://doi.org/10.1002/asmb.2436</p> <p>Gradient Methods for Solving Stackelberg Games (2019). Naveiro, R., & Ríos Insua, D. In: Pekeč S., Venable K.B. (eds) Algorithmic Decision Theory. ADT 2019. <i>Lecture Notes in Computer Science</i>, 11834: 126–140. Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-030-31489-7_9</p> <p>Reinforcement Learning under Threats. (2019). Gallego, V., Naveiro, R., & Ríos Insua, D. <i>Proceedings of the AAAI Conference on Artificial Intelligence</i>, 33(01): 9939–9940. https://doi.org/10.1609/aaai.v33i01.33019939</p>
SUBMITTED PAPERS	<p>Data Sharing Games (2020). Gallego, V., Naveiro, R., Ríos Insua, D., & Rozas W. <i>arXiv preprint arXiv:2101.10721</i> .</p> <p>Adversarial Machine Learning: Perspectives from Adversarial Risk Analysis (2020). Ríos Insua, D., Naveiro, R., Gallego, V., & Poulos, J. <i>arXiv preprint arXiv:2003.03546</i> .</p> <p>Protecting Classifiers from Attacks. A Bayesian Approach (2020). Gallego, V., Naveiro, R., Redondo, A., Ríos Insua, D., & Ruggeri, F. <i>arXiv preprint arXiv:2004.08705</i> .</p> <p>Augmented Probability Simulation Methods for Non-cooperative Games (2019). Ekin, T. Naveiro, R., Torres, A., & Ríos Insua, D. <i>arXiv preprint arXiv:1910.04574</i>.</p> <p>Opponent Aware Reinforcement Learning (2019). Gallego, V., Naveiro, R., & Ríos Insua, D. <i>arXiv preprint arXiv:1809.01560</i>.</p>
TECHNICAL SKILLS	<p>Programming, scripting and markup languages Python (PyTorch for deep learning), R, R Markdown, Bash, LaTeX.</p> <p>Operating systems Advanced experience with most flavours of Linux.</p> <p>Cluster Management System Sun Grid Engine.</p> <p>Databases MongoDB.</p>
TEACHING EXPERIENCE	<p>2021 June → 2021 July Course on Bayesian Methods in Artificial Intelligence for last year undergraduate students and master students. Institute of Mathematical Sciences, Spain.</p> <p>2021 June → 2021 July Course on Machine learning: Foundations, Computations and Applications for last year undergraduate students and master students. Institute of Mathematical Sciences, Spain.</p> <p>2020 September → 2021 February Teaching Assistant of Probability for undergraduate students in the second year of the degree in Mathematics. Complutense University of Madrid, Spain.</p>

- 2020 February → 2020 June** Lecturer of Applications of Stochastic Processes for undergraduate students in the last year of the degree in Mathematics. Complutense University of Madrid, Spain.
- 2019 February → 2019 May** Course on Machine Learning with R targeted to researchers from the Instituto Nacional de Estadística (National Statistics Institute). INE, Spain.
- 2019 February → 2019 May** Lecturer of Applications of Stochastic Processes for undergraduate students in the last year of the degree on Mathematics. Complutense University of Madrid, Spain.
- 2018 June** Teaching assistant in the XII Modelling Week for master students of the *Master in Mathematical Engineering*. Complutense University of Madrid, Spain.
- 2017 November → 2017 December** Courses on Python and Data Science at *Dirección General de Ordenación del Juego (DGOJ)*, Ministry of Finance, Spain.

TRANSFERENCE AND RESEARCH PROJECTS

- 2021 January → present** Discovery of Optimal Dispersants. Partner: Altenea Biotech and Repsol. Role: Principal Investigator.
- 2021 April → present** Adversarial Risk Analysis for dynamic competitive business decisions. Partner: CaixaBank. Role: Principal Investigator.
- 2021 April → present** Trustonomy. Horizon 2020 European Project. Role: Member of work team.
- 2020 May → present** Social Logging Models. Partner: Xeerpa. Role: Member of work team.
- 2018 October → 2019 February** Geoprofiling systems. Partner: A3SEC. Role: Member of work team.
- 2016 October → 2017 July** Monitoring for anomalous behaviour in massive traffic time series using dynamic linear models. Partner: A3SEC. Role: Member of work team.
- 2015 November → 2016 July** Fraud Detection in Electronic Payments. Partner: Evendor Engineering. Role: Member of work team.

CONFERENCES, TALKS AND INTERNATIONAL SCHOOLS

- 2022 January 22nd** Invited seminar speaker to *Universidad Tecnológica Indoamérica*.
Talk: *Adversarial Machine Learning: Bayesian perspectives*. Universidad Indoamérica, Quito (Ecuador).
- 2021 November 1st** Invited seminar speaker to *IMI-DSC Conference: Decision, Optimization and Data Science*.
Talk: *Adversarial Machine Learning: a probabilistic approach*. Complutense University of Madrid, Madrid (Spain).
- 2021 September 6th → 2021 September 10th** Attendance to the conference: *22nd European Young Statisticians Meeting EYSM 2021*, organized by the Bernoulli Society for Mathematical Statistics and Probability.
Talk: *Protecting classifiers from attacks*.

- 2021 September 1st → 2021 September 3rd** Attendance to the conference: *4th International Congress on Transportation Research ICTR 2021*, organized by the Hellenic Institute of Transportation Engineers.
Talk: *Towards ethical decision support in automated driving systems.*
- 2021 July 11th → 2021 July 16th** Attendance to the conference: *63rd ISI World Statistics Congress*, organized by the International Statistical Institute (ISI).
Talk: *Managing driving modes in Automated Driving Systems.*
- 2021 June 9th → 2021 June 10th** Attendance to the conference: *2021 Workshop of the Spanish Society of Statistics and Operations Research*, organized by the Spanish Society of Statistics and Operations Research (SEIO).
Talk: *Protecting Classifiers From Attacks*. Nominated for the prize *Ramiro Melendreras*.
- 2021 May 28th → 2021 May 29th** Invited speaker to the conference: *Twelfth Workshop on Bayesian Inference in Stochastic Processes*, organized by the National Research Council of Italy and IMATI.
Talk: *Bayesian forecasting dynamic models under attacks*. **Discussant:** Prof. Mike West.
- 2021 May 28th → 2021 May 29th** Invited speaker to the conference: *Twelfth Workshop on Bayesian Inference in Stochastic Processes*, organized by the National Research Council of Italy and IMATI.
Talk: *Bayesian forecasting dynamic models under attacks*. **Discussant:** Prof. Mike West.
- 2019 November 1st** Invited seminar speaker to *The Institute for Integrating Statistics in Decision Sciences. Department of Decision Sciences. The George Washington University*
Talk: *Security Games in the New Paradigm: Solution Techniques*. The George Washington University, Washington D.C. (USA).
- 2019 October 25th → 2019 October 27th** Attendance to the conference: *Algorithmic Decision Theory*, organized by the Duke Fuqua School of Business.
Talk: *Gradient Methods for Solving Stackelberg Games*. Duke University, Durham, NC (USA).
- 2019 August 5th → 2019 August 9th** Attendance to the conference: *Games, Decisions, Risk and Reliability Opening Workshop*, organized by the Statistical and Applied Mathematical Sciences Institute.
Poster: *Augmented Probability Simulation Methods for Non-cooperative Games*. NC State University, Raleigh, NC (USA).
- 2019 July 30th → 2019 August 2nd** Attendance to the conference: *Second Conference on Risk Analysis in the Digital Era*, organized by the Society for Risk Analysis and the University at Buffalo.
Poster: *Augmented Probability Simulation Methods for Non-cooperative Games*. Buffalo (USA).
- 2019 June 12th → 2019 June 14th** Invited speaker to the conference: *Eleventh Workshop on Bayesian Inference in Stochastic Processes*, organized by the Spanish Royal Academy of Natural Sciences in collaboration with ICMAT-CSIC. Madrid (Spain).
Talk: *Reinforcement Learning Under Threats*.

- 2018 July 23rd → 2018 July 27th** Attendance to the Summer School: *2nd International Summer School on Deep Learning*, organized by University of Genova and IRDTA - Brussels/London. Genova (Italy).
- 2018 May 29th → 2018 June 1st** Attendance to the conference: *XXXVII National Congress of Statistics and Operational Research*, organized by the Spanish Society of Statistics and Operations Research (SEIO).
Talk: *Adversarial Classification: An Adversarial Risk Analysis approach*. Nominated for the prize *Ramiro Melendreras*. Oviedo (Spain).
- 2017 November 13th → 2017 November 15th** Attendance to the conference: *1st Spanish Young Statisticians and Operational Researchers Meeting (SYSORM)*, organized by the Spanish Society of Statistics and Operations Research (SEIO) in collaboration with University of Granada (Spain).
Talk: *Adversarial Classification: An Adversarial Risk Analysis approach*. Granada (Spain).
- 2017 September 4th → 2017 September 6th** Attendance to Summer School: *Accelerating Data Science with HPC*, organized by the CSCS-ICS-DADSi. Lugano (Switzerland).
- 2017 June 13th → 2017 June 15th** Attendance to the conference: *Bayesian Inference in Stochastic Processes (BISP10)*, organized by the Bocconi University in collaboration with the International Society for Bayesian Analysis (ISBA). Milano (Italy).
Talk: *Monitoring for anomalous behaviour in massive traffic time series*.
- 2017 June 7th → 2017 June 9th** Attendance to the conference: *Games and Decisions in Risk and Reliability (GDRR)*, organized by the Spanish Royal Academy of Natural Sciences in collaboration with ICMAT-CSIC. Madrid (Spain).
Talk: *Fraud detection in electronic payments*.
- 2017 January 16th → 2017 January 20th** Attendance to Winter School: *Memory School*, organized by the Centre de Recerca Matemàtica as part of the Intensive Research Program on the Mathematics of Memory (MATHMEM). Barcelona (Spain).
- 2016 October 27th → 2016 October 28th** Attendance to the workshop: *Mathematical Solutions for Industry: Success Stories and perspectives*, organized by the Institute of Mathematical Sciences (ICMAT) in collaboration with Red Española de Matemática Industrial (Math-in). Madrid (Spain).
Poster Presentation: *Random Forest Algorithm in Fraud Detection*.
- 2016 March 9th** Attendance to the conference: *BBVA-spor winter day. Data Science and Statistical Learning*, organized by the Institute of Mathematical Sciences (ICMAT). Madrid (Spain).

ORGANIZED
CONFERENCES

- 2021 November 3rd → 2021 November 5th** PhD Day organizer at the 7th International Conference on Algorithmic Decision Theory. University of Toulouse 1 Capitole. <https://www.irit.fr/ADT2021/>
- 2020 December 1st → 2020 December 1rd** 3rd BYMAT Conference: Bringing Young Mathematicians Together at the Universitat de Valencia. BYMAT Network with Fundación BBVA as exclusive partner. <https://bymat.webs.upv.es/index/>

2019 June 12th → 2019 June 14th 11th Workshop on Bayesian Inference in Stochastic Processes at the Spanish Royal Academy of Sciences.

2019 May 20th → 2019 May 24th 2nd BYMAT Conference: Bringing Young Mathematicians Together at the Institute of Mathematical Sciences (ICMAT-CSIC). *BYMAT Network with Fundación BBVA as exclusive partner*. <https://www.icmat.es/congresos/2019/BYMAT/>

2018 May 7th → 2018 May 9th 1st BYMAT Conference: Bringing Young Mathematicians Together at the Institute of Mathematical Sciences (ICMAT-CSIC). *BYMAT Network with Fundación BBVA as exclusive partner*. <https://www.icmat.es/congresos/2018/BYMAT/>

2017 June 7th → 2017 June 9th 5th symposium on Games and Decisions in Reliability and Risk at the Spanish Royal Academy of Sciences.

STUDY GROUPS WITH
INDUSTRY

2017 May 15th → 2017 May 19th Attendance to European Study Group with Industry: *ESGI 131*, organized by the Basque Centre for Applied Mathematics (BCAM) in collaboration Red Española de Matemática Industrial (Math-in). Bilbao (Spain).

Challenge: Big Data in Sports: Predictive Models for Basketball Player's Performance.