Curriculum Vitae – Roi Naveiro Flores

Personal Information

Roi Naveiro Flores
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Education

PhD, *Cum Laude* and *International* distinctions (2016-2020). Advisors: David Ríos Insua (ICMAT - Institute of Mathematical Sciences, 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

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

2015 June → September 2015 Research scholar 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 scholar 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.

2018 September Short term research scholarship awarded by the Spanish Ministry of Education for a research stay in 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.

PUBLICATIONS

Perspectives on Adversarial Classification (2020). Ríos Insua, D., Naveiro, R., & Gallego, V. *Mathematics Journal.*

Adversarial Risk Analysis (Overview) (2020). Banks, D., Gallego, V., Naveiro, R., & Ríos Insua, D. *WIREs Computational Statistics.*

Adversarial Classification: An adversarial Risk Analysis approach (2019). Naveiro, R., Redondo, A., Insua, D. R., & Ruggeri, F. *International Journal of Approximate Reasoning.*

Large Scale Automated Forecasting for Monitoring Network Safety and Security (2019). Naveiro, R., Rodríguez, S., & Ríos Insua, D. *Applied Stochastic Models in Business and Industry.*

Gradient Methods for Solving Stackelberg Games (2019). Naveiro, R., & Ríos Insua, D. *Lecture Notes in Computer Science.*

Reinforcement Learning under Threats. (2019). Gallego, V., Naveiro, R., & Ríos Insua, D. *AAAI 2019. Student Track.*

Hydroxicloroquine for pre-exposure prophylaxis for SARS-CoV-2 (2020). Lopez de la Iglesia, J., Cubelos, N., Naveiro, R., et. al.
medrXiv doi 10.1101/2020.08.31.20185314v2. (Submitted to BMJ Open).

Adversarial Machine Learning: Perspectives from Adversarial Risk Analysis (2020). Ríos Insua, D., Naveiro, R., Gallego, V., & Poulos, J. *arXiv preprint arXiv:2003.03546 . (Submitted to the Journal of the American Statistical Association).*

Protecting Classifiers from Attacks. A Bayesian Approach (2020). Gallego, V., Naveiro, R., Redondo, A., Ríos Insua, D., & Ruggeri, F. *arXiv preprint arXiv:2004.08705 . (Submitted to the Journal of the American Statistical Association).*

Augmented Probability Simulation Methods for Non-cooperative Games (2019). Ekin, T. Naveiro, R., Torres, A., & Ríos Insua, D. *arXiv preprint arXiv:1910.04574. (Preprint under major revision in Operations Research).*

Opponent Aware Reinforcenment Learning (2019). Gallego, V., Naveiro, R., & Ríos Insua, D. *arXiv preprint arXiv:1809.01560.*

TEACHING EXPERIENCES	**2020 February → 2020 June** Lecturer of Applications of Stochastic Processes for undergraduate students in the last year of the degree on Mathematics. University Complutense 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. University Complutense of Madrid, Spain.
	2018 June Teaching assistant in the XII Modelling Week for master students of the *Master of Mathematical Engineering*. University Complutense of Madrid, Spain.
	2017 November → 2017 December Courses on Python and Data Science at *Direccion General de Ordenacion del Juego (DGOJ)*, Ministry of Finance, Spain.

TRANSFERENCE PROJECTS	**2018 October → 2019 February** Geoprofiling systems. Partner: A3SEC.
	2016 October → 2017 July Monitoring for anomalous behaviour in massive traffic time series using dynamic linear models. Partner: A3SEC.
	2015 November → 2016 July Fraud Detection in Electronic Payments. Partner: Evendor Engineering.

CONFERENCES, TALKS AND INTERNATIONAL SCHOOLS	**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 Methodsfor 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 Methodsfor 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:** *Reinforcenment 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 Opertional 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 Opertional Research (SEIO) in collaboration with University of Granada (Spain).
Talk: *Adversarial Classification: An Adversarial Risk Analysis approach.* Granada (Spain).

2017 Sepetember 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 Matematica 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

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
    2018 June 18th → 2018 June 22th Attendance to XII Modelling Week of the *Master of Mathematical Engineering* organized by University Complutense of Madrid. Madrid (Spain).
Challenge: Machine Learning techniques in the modeling of credit risk admission.

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.