DANIEL CORRALES ALONSO

+34 601 175 722 daniel.corrales@icmat.es DanielCorralesAlonso

ABOUT ME

I hold a degree in Mathematical Engineering from Universidad Complutense de Madrid and an MSc in Machine Learning for Health from Universidad Carlos III de Madrid. I am currently undertaking a PhD in Statistics at the Institute of Mathematical Sciences (ICMAT). My interests lie in Probabilistic Machine Learning and Bayesian Methods, their real-world applications, and their ethical implications. I strive to contribute to technology that is more interpretable, transparent, and fair. Passionate about interdisciplinary work.

EDUCATION

PhD at Mathematics Department *Sept 2024 - Present*
Department of Mathematics, School of Sciences, Universidad Autónoma de Madrid, Spain.

MSc in Machine Learning for Health *Sept 2023 - Jul 2024*
Graduate School of Engineering and Basic Sciences, Universidad Carlos III de Madrid, Spain.

BSc in Mathematical Engineering *Sep 2018 - Mar 2023*
Department of Mathematical Sciences, Universidad Complutense de Madrid, Spain.

PROFESSIONAL EXPERIENCE

Department of Statistical Science, Duke University. *Feb 2026 - May 2026*
Research Stay *Durham, North Carolina, US*

Visitor under the supervision of Professor David Banks. Worked on using Natural Language Processing to infer intent on interference in the US elections.

Institute of Mathematical Sciences (ICMAT-CSIC) *Jan 2024 - Sept 2024*
Research Technician *Madrid, Spain*

Research technician working in the ONCOSCREEN project funded by the European Union's Horizon Europe research and innovation programme. Development of colorectal cancer risk assessment tools and modelling of screening strategies.

Institute of Mathematical Sciences (ICMAT-CSIC) *Mar 2023 - Sep 2023*
CSIC Scholarship for Introduction to Research. JAE Intro Program *Madrid, Spain*

Research internship working on a project to analyse colorectal cancer risk in the European population and the performance of screening methods using Bayesian networks and inference diagrams. Developed under the supervision of Professor David Ríos-Insua.

Basque Center for Applied Mathematics (BCAM) *Jul 2022 - Sept 2022*
Research Intern *Bilbao, Spain*

Developed my B.Sc. final year project on the analysis, guarantees and implementation of the Minimax Risk Classifier algorithm under the supervision of Professor Santiago Mazuelas.

Warwick Mathematics Institute, University of Warwick *Sep 2021 - Jul 2022*
Erasmus Scholarship Exchange Student Program *Coventry, UK*

PUBLICATIONS

- Corrales, D., Insua, D. R. (2025, June). *Incentivising Personalised Colorectal Cancer Screening: an Adversarial Risk Analysis Approach.* In 2025 IEEE 38th International Symposium on Computer-Based Medical Systems (CBMS) (pp. 307-310). IEEE. doi:10.1109/CBMS65348.2025.00068
- Corrales, D., Insua, D. R., González, M. J. (2025). *A decision support model for colorectal cancer screening.* Computers in Biology and Medicine, 196, 110755. doi:10.1016/j.compbiomed.2025.110755

- Corrales, D., Santos-Lozano, A., López-Ortiz, S., Lucia, A., Insua, D. R. (2024). *Colorectal cancer risk mapping through Bayesian networks.* Computer Methods and Programs in Biomedicine, 257, 108407. doi:10.1016/j.cmpb.2024.108407

SEMINARS AND CONFERENCES

- **International Society for Bayesian Analysis World Meeting** *Nagoya, Japan, June 2026*
  Talk title: *Bayesian online test time adaptation: a general framework*
- **5th Spanish Young Statisticians and Operational Researchers Meeting.** *Univ. de Sevilla, Nov 2025*
  Talk title: *Designing incentives for colorectal cancer screening programs using adversarial risk analysis.*
- **Workshop: AI x Mathematics Camp 2025.** *Feishu China, Shanghai, Nov 2025*
- **Workshop: Accelerating statistical inference and experimental design with machine learning.** *Isaac Newton Institute for Mathematical Sciences, Cambridge, Jun 2025*
- **IEEE 38th Computer Based Medical Systems.** *Univ. Politécnica de Madrid, Jun 2025*
  Talk title: *Incentivising personalised colorectal cancer screening: an adversarial risk analysis approach*
- **XLI National Congress on Statistics and Operational Research.** *Univ. de Lleida, Jun 2025*
  Talk title: *Modelling cancer screening strategies using Bayesian decision analysis*
- **I Iberian Conference on MCDM/A.** *Universidade de Coimbra, May 2025*
  Talk title: *Leveraging MCDA for colorectal cancer screening strategies*
- **IV Jornadas Científicas de la PTI+ Salud Global** *Univ. de Valencia, Oct 2024*
  Talk title: *A decision analysis model for colorectal cancer screening*
- **INFORMS Advances in Decision Analysis Conference.** *Aalto University, Jul 2024*
  Talk title: *A decision analysis model for colorectal cancer screening*
- **4th Spanish Young Statisticians and Operational Researchers Meeting.** *Univ. de Santiago de Compostela, Jun 2024*
  Talk title: *A decision analysis model for colorectal cancer screening*
- **First International Workshop on Bayesian Statistics.** *Univ. Carlos III de Madrid, Jun 2024*
  Talk title: *A decision analysis model for colorectal cancer screening*
- **Seminar on Multidimensional Security** *Univ. Complutense de Madrid, Nov 2023*
  Talk title: *Techniques towards explainability in machine learning models*
- **Workshop: The many challenges of Artificial Intelligence, Madrid** *CSIC, Madrid, Spain, Nov 2023*
  Poster title: *Colorectal cancer risk mapping through Bayesian Networks*
- **AIHUB-CSIC Summer School** *CSIC, Barcelona, Spain, Jul 2023*
  Workshop title: *Machine learning hackathon*

MEDIA COVERAGE

Un nuevo modelo matemático permite mejorar la detección de cáncer colorrectal, *Actualidad del CSIC*, September 17th, 2025

ACTIVITIES

UNU-INWEH x Feishu International Hackathon "AI + Mathematics + Sustainability" *Nov 2025*

I DataFest Spain IKEA-UNAV *Apr 2023*

Workshop: ExperimentaMates+ODS *Nov 2022*

Accenture-UCM Modelling Competition Winner *Nov 2021*

SKILLS

Programming
Python (scikit-learn, tensorflow, pytorch, pgmpy), MATLAB, R.
Languages
Spanish (native), English (fluent, Cambridge University certification), German (studying for B1-level).