

# Fernando Moreno-Pino, PhD

Intelligent Systems Lab, University of Bristol



- 🌐 <https://fmorenopino.github.io>
- /github <https://github.com/fmorenopino>
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📍 School of Engineering Mathematics and Technology, BS8 1UB

## POSITIONS

- **Intelligent Systems Lab, University of Bristol** Bristol, UK  
*Assistant Professor in Machine Learning*  
Dec. 2025 - Present
  - **Summary:** My research lies at the intersection of deep learning, probabilistic Machine Learning (ML), and quantitative finance.
- **Oxford-Man Institute, University of Oxford** Oxford, UK  
*Academic Visitor*  
Dec. 2025 - Present
  - **Summary:** I collaborate with the OMI on research activities.
- **Oxford-Man Institute, University of Oxford** Oxford, UK  
*Postdoctoral Researcher*  
Aug. 2023 - Nov. 2025
  - **Summary:** I led multiple first-author research projects on ML methods for spatio-temporal and sequential modeling and their application in quantitative finance, publishing in top venues in both fields.
- **Mathematical Institute, University of Oxford** Oxford, UK  
*Teaching Assistant*  
Aug. 2023 - Nov. 2025
  - **Summary:** Teaching the deep learning course at the MSc in Mathematical and Computational Finance, University of Oxford.
- **Universidad Carlos III de Madrid** Madrid, Spain  
*Research & Teaching Associate, Signal Processing and Learning Group*  
Sep. 2018 - July 2023
  - **Supervisor:** Prof. Dr. Antonio Artés Rodríguez.
  - **Summary:** I collaborated with Universidad Carlos III de Madrid in teaching and research activities.
- **Oxford-Man Institute, University of Oxford** Oxford, UK  
*Visiting Researcher. Founded by MAN Group*  
May 2022 - Oct. 2022
  - **Supervisor:** Dr. Stefan Zohren.
  - **Summary:** Studying and developing of novel neural-based methods for the problems of assets' volatility forecasting and estimation of fill probabilities in Limit Order Books (LOB).
- **Universidad Carlos III de Madrid** Madrid, Spain  
*Research Assistant, Signal Processing and Learning Group*  
Dec. 2017 - Sep. 2018
  - **Supervisor:** Prof. Dr. Antonio Artés Rodríguez.
  - **Summary:** My work focused on applying Machine Learning techniques for the Human Activity Recognition (HAR) problem.
- **Universidad de Málaga** Málaga, Spain  
*Research Assistant, Department of Programming Languages and Computer Science*  
Jan. 2016 - Sep. 2016
  - **Supervisor:** Prof. Dr. Pedro Merino Gómez.
  - **Summary:** Research on low latency communication systems software at the MORSE Research Group.

## EDUCATION

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- **Universidad Carlos III de Madrid** Madrid, Spain
  - *PhD Candidate in Probabilistic Machine Learning and Deep Learning (Cum Laude).* Sep. 2018 – May. 2023
    - **Dissertation:** “Deep Attentive Time Series Modelling for Quantitative Finance”
    - **Advisors:** Prof. Dr. Antonio Artés Rodríguez and Dr. Pablo Martínez Olmos.
    - **Research:** My research included probabilistic machine learning methods, signal processing techniques integration into deep-learning architectures, the development of deep neural networks (as Transformer-based models) for time-series modelling and forecasting, and the application of ML techniques to quantitative finance-related problems. Previously, I worked with heterogeneous models for high dimensional data.
- **Universidad Carlos III de Madrid** Madrid, Spain
  - *M.Sc. in Telecommunications Engineering (Electrical Engineering)* Sep. 2016 – Jul. 2018
- **Universidad de Málaga** Málaga, Spain
  - *B.Sc. in Telecommunications Engineering (Electrical Engineering)* Sep. 2012 – Jul. 2016
    - **Graduated with Honors:** Best academic record of the class.

## PUBLICATIONS

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- **Moreno-Pino, F.\***, Arroyo, Á.\* , Waldon, H.\* , Dong, X., Cartea, Á. (2024). Rough Transformers: Lightweight and Continuous Time Series Modelling through Signature Patching. In Advances in Neural Information Processing Systems 38 (NeurIPS), 2024.
- **Moreno-Pino, F.**, Zohren, S. (2024). DeepVol: Volatility Forecasting from High-Frequency Data with Dilated Causal Convolutions. In Quantitative Finance, Taylor & Francis, 2024.
- **Moreno-Pino, F.\***, Arroyo, Á.\* , Waldon, H.\* , Dong, X., Cartea, Á. (2024). Rough Transformers: Lightweight Continuous-Time Sequence Modelling with Path Signatures. In “Next Generation of Sequence Modeling Architectures” workshop, ICML 2024.
- **Moreno-Pino, F.\***, Arroyo, Á.\* , Waldon, H.\* , Dong, X., Cartea, Á. (2024). Rough Transformers for Continuous and Efficient Time-Series Modelling. In “Learning from Time Series for Health” workshop, ICLR 2024.
- **Moreno-Pino, F.**, Olmos, P. M., & Artés-Rodríguez, A. (2023). Deep Autoregressive Models with Spectral Attention. In Pattern Recognition, Elsevier, 2023.
- Jiménez Rama, Ó., **Moreno-Pino, F.**, Ramírez, D., Olmos, P.M. (2023). Interpretable Spectral Variational AutoEncoder (ISVAE) for time series clustering. arXiv preprint arXiv:2310.11940.
- Arroyo, Á.\* , Cartea, Á., **Moreno-Pino, F.\*** & Zohren, S. (2023). Deep Attentive Survival Analysis in Limit Order Books: Estimating Fill Probabilities with Convolutional-Transformers. Presented at Euro Working Group on Commodities and Financial Modelling (EWGCFM) 2023 & in Quantitative Finance, Taylor & Francis, 2023.
- Martínez-García, M.\* , **Moreno-Pino, F.\*** , Olmos, P. M., & Artés-Rodríguez, A. (2023). Sleep Activity Recognition and Characterization from Multi-Source Passively Sensed Data. arXiv preprint arXiv:2301.10156.
- **Moreno-Pino, F.**, Martínez-García, M., Olmos, P. M., & Artés-Rodríguez, A. (2022). Heterogeneous Hidden Markov Models for Sleep Activity Recognition from Multi-Source Passively Sensed Data. Accepted at ML4H 2022, collocated with NeurIPS.
- **Moreno-Pino, F.**, Sükei, E., Olmos, P. M., & Artés-Rodríguez, A. (2022). PyHHMM: A Python Library for Heterogeneous Hidden Markov Models. arXiv preprint arXiv:2201.06968, submitted to the Journal of Machine Learning Research, Machine Learning Open Source Software section.
- Ríos-Muñoz, G. R., **Moreno-Pino, F.**, Soto, N., M. Olmos, P. , Artés-Rodríguez, A., Ferández-Avilés, F., & Arenal, A. (2020). Hidden Markov Models for Activity Detection in Atrial Fibrillation Electrograms. In 2020 Computing in Cardiology (pp. 1-4). IEEE.

- **Moreno-Pino, F.**, Porras-Segovia, A., López-Esteban, P., Artés, A., & Baca-García, E. (2019). Validation of Fitbit Charge 2 and Fitbit Alta HR against polysomnography for assessing sleep in adults with obstructive sleep apnea. *Journal of Clinical Sleep Medicine*, 15(11), 1645-1653.

## OTHERS

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- **Moreno-Pino, F.**, Artés-Rodríguez, A. (2019). Human Activity Recognition in Psychiatric Patients through Heterogeneous Hidden Markov Models. Machine Learning Summer School (MLSS), Moscow, Russia (Poster).
- **Moreno-Pino, F.**, Artés-Rodríguez, A. (2018). Sleep Activity Recognition through Hidden Markov Models. Data Science Summer School (DS3), Paris, France (Poster).

## TEACHING

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- **Engineering Science, University of Oxford** Oxford, UK  
*Tutor at the Intelligent Earth Centre for Doctoral Training* Jan. 2025
  - Deep Learning for Time Series Forecasting: 2025.
- **Magdalen College, University of Oxford** Oxford, UK  
*Tutor at the “Oxford Study Abroad Programme” for Visiting BSc and MSc Students* Sep. 2023 – Nov. 2025
  - Deep Learning: 2023 – 2025.
- **Mathematical Institute, University of Oxford** Oxford, UK  
*Teaching Assistant at the MSc in Mathematical and Computational Finance* Sep. 2023 – Nov. 2025
  - Deep Learning : 2023 – 2025.
- **BBVA** Madrid, Spain  
*Teaching Staff, Associated with Fundación Universidad Carlos III* Sep. 2021 – Present
  - Deep Generative AI Course: 2025 – Present.
  - Advanced Machine Learning and Feature Engineering Course: 2022 – Present.
  - Intermediate Machine Learning and Feature Engineering Course: 2022 – Present.
  - Natural Language Processing (NLP) Course: 2021 – Present.
- **Universidad Carlos III de Madrid** Madrid, Spain  
*Reader (Lecturer) & Teaching Assistant -Bachelor in Electrical Engineering* Sep. 2018 – July 2023
  - Signals and Systems: 1st Semester 2023 (30 hours).
  - Machine Learning II: 1st Semester 2021 (38 hours).
  - Bayesian Machine Learning, Modern Theory of Detection and Estimation: 1st Semester 2018 – 2019 (61 hours).
  - Communications Theory: 1st Semester 2018 – 2019, 2023 (102 hours).
  - Linear Systems: 1st Semester 2018 (11 hours).

## HONOR AND AWARDS

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- **MAN Group & OMI's Visitors Programme Fellowship (2022)**: My research visit at Oxford-Man Institute during my PhD was funded by the OMI's Visitors Programme (7200£).
- **UC3M Research Mobility Fellowship (July-October 2022)**: Fellowship to conduct research at the University of Oxford (4716€).
- **FPU Research Mobility Fellowship (May-July 2022)**: Fellowship to conduct research at the University of Oxford (4095€).
- **FPU Grant (2018-2022)**: My PhD was funded by the Spanish Ministry of Education after a nationwide competitive selection process (60996,12€).
- **Research Fellowship, Signal Processing and Learning Group, Universidad Carlos III de Madrid (2017)**: Awarded funding to support research for my M.Sc. dissertation (€5,250).
- **Talentia Scholarship by “Junta de Andalucía” (2017, declined)**: Two years scholarship to complete the Master of Engineering at Cornell University’s New York campus (62092,68€).

\*Denotes co-first authors with equal contributions.

- ‘Premios Extraordinarios de Fin de Estudios’ (2016): This prize rewards the student with the best academic record, granted by Universidad de Málaga for my Bachelor studies.
- ‘Premios Ingenio’, Finalist (2016): These prizes award the best thesis of the year on the field of Telecommunications Engineering, in the Region of Andalusia, Spain.
- Research Fellowship, Department of Computer Science and Programming Languages, Universidad de Málaga (2016): Awarded funding to support research for my B.Sc. dissertation (€2,074).

## REVIEWING

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- Neural Networks: Since 2025.
- Neural Information Processing Systems (NeurIPS): Since 2024 (Reviewer and workshop proposals reviewer).
- Journal of Applied Mathematical Finance: Since 2024.
- Artificial Intelligence and Statistics (AISTATS): Since 2023.
- Artificial ACM International Conference on AI in Finance (ICAIIF): Since 2023.
- Journal of Quantitative Finance: Since 2023.
- Pattern Recognition: Since 2022.
- AAAI Conference on Artificial Intelligence: Since 2022.
- IEEE Transactions on Neural Networks and Learning Systems: Since 2021.
- Journal of Biomedical and Health Informatics (JBHI): 2020-2023.

## COMMITTEES

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- International Conference on AI in Finance (ICAIIF): 2023, 2025 (Program Committee).

## TALKS

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• <b>SIAM Conference on Financial Mathematics and Engineering</b>	Miami, US
• <i>Generative AI in Finance</i>	Jul. 2025
• <b>Department of Engineering Mathematics, University of Bristol</b>	Bristol, UK
• <i>Deep Attentive Time Series Modelling for Quantitative Finance</i>	Jun. 2025
• <b>Quantitative Risk Management and Mathematical Finance, University of Vienna</b>	Vienna, Austria
• <i>Neural Dynamical Systems for Time-Series Data</i>	Apr. 2025
• <b>Invited Talk at Citi Bank</b>	New York, US
• <i>Rough Transformers: Lightweight and Continuous Time Series Modelling through Signature Patching</i>	Mar. 2025
• <b>The Alan Turing Institute &amp; Mathematical Institute, University of Oxford</b>	London, UK
• <i>Bridging Rough Paths and Deep Learning: New Frontiers [Video]</i>	Nov. 2024
• <b>Oxford-Man Institute, University of Oxford</b>	Oxford, UK
• <i>Deep Autoregressive Models with Spectral Attention</i>	Mar. 2024
• <b>Signal Processing and Learning Group, Universidad Carlos III de Madrid</b>	Madrid, Spain
• <i>Deep Attentive Time Series Modelling for Quantitative Finance</i>	Apr. 2023
• <b>Oxford-Man Institute, University of Oxford</b>	Oxford, UK
• <i>DeepVol: Volatility Forecasting from High-Frequency Data with Dilated Causal Convolution</i>	Oct. 2022
• <b>Signal Processing and Learning Group, Universidad Carlos III de Madrid</b>	Madrid, Spain
• <i>Deep Autoregressive Models with Spectral Attention</i>	Oct. 2021

## CONFERENCES, SUMMER SCHOOLS, AND OTHERS

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- **SIAM** Miami, US  
*Conference on Financial Mathematics and Engineering* Jul. 2025
- **NeurIPS** Vancouver, Canada  
*Conference on Neural Information Processing Systems* Dec. 2024
- **ICML** Vienna, Austria  
*International Conference on Machine Learning* Jul. 2024
- **ICLR** Vienna, Austria  
*International Conference on Learning Representations* May. 2024
- **AISTATS** Valencia, Spain  
*Artificial Intelligence and Statistics* Apr. 2023
- **AI for Global Goals - University of Oxford** Oxford, United Kingdom  
*ML x Finance* Aug. 2022
- **University of Sheffield** Sheffield, United Kingdom [Online]  
*The Gaussian Process Summer School* Sep. 2021
- **University of Sheffield** Sheffield, United Kingdom [Online]  
*The Gaussian Process Summer School* Sep. 2020
- **Liège Université** Liége, Belgium [Online]  
*Machine Learning Frontiers in Precision Medicine (MLFPM)* Sep. 2020
- **ETH Zürich** Basel, Switzerland  
*Machine Learning Frontiers in Precision Medicine (MLFPM)* Sep. 2019
- **Skoltech** Moscow, Russia  
*Machine Learning Summer School (MLSS)* Aug. 2019 – Sep. 2019
- **École Polytechnique** Paris, France  
*Data Science Summer School (DS3)* Jun. 2018

## COURSES

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- **University of California, Santa Cruz** Coursera [Online]  
*Bayesian Statistics: From Concept to Data Analysis, 4 weeks course* Jul. 2021
- **DeepLearning.AI** Coursera [Online]  
*Structuring Machine Learning Projects, 3 weeks course* May 2018
- **DeepLearning.AI** Coursera [Online]  
*Improving DNNs: Hyperparameter Tuning, Regularization and Optimization, 2 weeks course* May 2018
- **Universidad Internacional Menéndez Pelayo** Barcelona, Spain  
*English Immersion Course* Apr. 2018
- **DeepLearning.AI** Coursera [Online]  
*Neural Networks and Deep Learning, 4 weeks course* Mar. 2018
- **Stanford University** Coursera [Online]  
*Machine Learning, 11 weeks course* Feb. 2018
- **University of Washington** Coursera [Online]  
*Machine Learning: Classification, 7 weeks course* Nov. 2017
- **University of Washington** Coursera [Online]  
*Machine Learning: Regression, 6 weeks course* Oct. 2017

• <b>University of Washington</b> <i>Machine Learning Foundations, 6 weeks course</i>	Coursera [Online] Jul. 2017
• <b>Nvidia Corporation, CUDA Fellows Program &amp; Universidad de Málaga</b> <i>Technical Training Course: Parallel Programming of the GPU with CUDA</i>	Málaga, Spain Jul. 2016 – Aug. 2016

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## LANGUAGES

- **Spanish:** Native language.
- **English:** Advanced, TOEFL:102/120.
- **French:** Basic.

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## PROJECTS

- **Heterogeneous Hidden Markov Model:** Python implementation of a HMM model capable of managing heterogeneous and missing data: <https://github.com/fmorenopino/HeterogeneousHMM>, <https://pyhhmm.readthedocs.io/>.
- **VoIP calls:** C implementation of a Voice over IP calls' service (point-to-point audio conference). RTP over UDP was used: [https://github.com/fmorenopino/c\\_calls](https://github.com/fmorenopino/c_calls).

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## PROGRAMMING SKILLS

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| • <b>Languages:</b> Python, Matlab, C, C++ | <b>Technologies:</b> Pytorch, Keras, Sklearn, Jupyter, Git, LATEX |
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## REFEREES

- Dr. Álvaro Cartea, University of Oxford, UK.
- Dr. Stefan Zohren, University of Oxford, UK.
- Dr. Antonio Artés Rodríguez, Universidad Carlos III de Madrid, Spain.
- Dr. Pablo Martínez Olmos, Universidad Carlos III de Madrid, Spain.