

Ignacio Peis

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POSITIONS	Technical University of Denmark, DTU <i>Postdoctoral Researcher</i> Section for Cognitive Systems Dept. of Applied Mathematics and Computer Science (DTU Compute)	Oct. 2023 - Present
	Intor.AI <i>AI Researcher</i>	Nov. 2024 - Present
	EBIS Business School <i>Lecturer</i> Master in Data Science and Artificial Intelligence	Oct. 2024 - Present
	Fundación UC3M & BBVA <i>Instructor</i> Fundamentals, Intermediate and Advanced Machine Learning courses for BBVA employees	Dec. 2020 - Dec. 2024
	Universidad Carlos III de Madrid <i>Predoctoral Researcher & Teaching Assistant</i> Signal Processing Group Supervisors: Prof. Antonio Artés Rodríguez Dr. Pablo Martínez Olmos	Oct. 2019 - Sept. 2023
	University of Cambridge <i>Visiting researcher</i> Machine Learning Group Supervisor: Prof. José Miguel Hernández-Lobato	Feb. 2021 - Feb. 2022
	Universidad Carlos III de Madrid <i>Research associate</i> Signal Processing Group Supervisor: Prof. Antonio Artés Rodríguez	Feb. 2017 - Sept. 2019
AFFILIATIONS	Pioneer Centre for Artificial Intelligence <i>Postdoc</i>	Nov 2023 - Present
	Danish Data Science Academy <i>Postdoc Fellow</i>	Oct 2023 - Present

EDUCATION	Universidad Carlos III de Madrid <i>PhD in Probabilistic Machine Learning</i> Cum Laude Outstanding PhD Thesis Award Advisors: Prof. Antonio Artés Rodríguez Dr. Pablo Martínez Olmos	Oct 2018 - Oct 2023
	Universidad Carlos III de Madrid <i>M.Sc. in Telecommunications Engineering</i> Dissertation with highest mark	Sep. 2016 - Jul. 2018
	Universidad Carlos III de Madrid <i>M.Sc. in Multimedia and Communications</i> Dissertation with highest mark One course with honors	Sep. 2016 - Jul. 2018
	Universidad de Granada <i>B.Sc. in Telecommunications Engineering</i> Five courses with honors	Sep. 2012 - Jul. 2016
AWARDS	Outstanding PhD Thesis Award Universidad Carlos III de Madrid PhD Defense Committee: Dr. Daniel Hernández Lobato, UAM Dr. Francisco R. Ruiz, Google Deepmind Prof. Fernando Pérez Cruz, ETH, SDSC	2023
	Postdoc Fellowship Award Danish Data Science Academy Novo Nordisk Foundation	2023
CONFERENCE PUBLICATIONS		
2023	B. Koyuncu, P. Sánchez-Martín, I. Peis , P. M. Olmos and I. Valera. Variational Mixture of HyperGenerators for Learning Distributions Over Functions. <i>Proceedings of the 40th International Conference on Machine Learning, in Proceedings of Machine Learning Research 202:17660-17683</i> , 2023. [pdf] [code] [video] [poster]	
2022	I. Peis , C. Ma and J. M. Hernández-Lobato. Missing Data Imputation and Acquisition with Deep Hierarchical Models and Hamiltonian Monte Carlo. In <i>Advances in Neural Information Processing Systems (NeurIPS) 35: 35839-35851</i> , 2022. [pdf] [code] [slides] [video] [poster]	

- 2016 **I. Peis**, I. A. Illán, F. J. Martínez-Murcia, F. Segovia, J. M. Górriz, J. Ramírez, E. W. Lang & D. Salas-Gonzalez. **MRI brain segmentation using hidden Markov random fields with alpha-stable distributions.** In *IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD)* (pp. 1-3). IEEE, 2016. [html]

JOURNAL PUBLICATIONS

- 2022 **I. Peis**, P. M. Olmos and A. Artés-Rodríguez. **Unsupervised Learning of Global Factors in Deep Generative Models.** In *Pattern Recognition*, vol. 134, p. 109130, 2022. [pdf] [code]
- 2020 **I. Peis**, J. D. López-Morínigo, M. M. Pérez-Rodríguez, M. L. Barrigón, M. Ruiz-Gómez, A. Artés-Rodríguez and E. Baca-García. **Actigraphic recording of motor activity in depressed inpatients: a novel computational approach to prediction of clinical course and hospital discharge.** In *Scientific reports*, 10. Nature, 2020. [pdf]
- 2019 **I. Peis**, P. M. Olmos, C. Vera-Varela, M. L. Barrigón, P. Courtet, E. Baca-García and A. Artés Rodríguez. **Deep Sequential Models for Suicidal Ideation from Multiple Source Data.** In *Journal of Biomedical and Health Informatics*, vol. 23, no. 6. IEEE, 2019. [pdf] [html]
- 2017 D. Castillo-Barnes, **I. Peis**, F. J. Martínez-Murcia, F. Segovia, I. A. Illán, J. M. Górriz, J. Ramírez, D. Salas-Gonzalez. **A Heavy Tailed Expectation Maximization Hidden Markov Random Field Model with Applications to Segmentation of MRI.** In *Frontiers in Neuroinformatics*, 11, 66, 2017. [pdf]

PREPRINTS

- 2024 B. James, S. Pollok, **I. Peis**, J. Frellsen and R. Bjørk. **Scalable physical source-to-field inference with hypernetworks.** *arXiv preprint arXiv:2405.05981*, 2024. [pdf]

- TALKS *Variational Mixture of HyperGenerators for Learning Distributions Over Functions*
Andaluz.IA forum
[slides]

Dec. 2023

	<i>Information Acquisition and Distributions of Functions with Deep Generative Models</i> Pioneer Centre for Artificial Intelligence, Copenhagen, Denmark [slides]	Jun. 2023
	<i>Missing Data Imputation and Acquisition with Deep Hierarchical Models and Hamiltonian Monte Carlo</i> Oral (video) and poster presentation NeurIPS22, New Orleans, USA [slides] [video] [poster]	Dec. 2022
	<i>Missing Data Imputation and Acquisition with Deep Hierarchical Models and Hamiltonian Monte Carlo</i> Signal Processing Group Universidad Carlos III de Madrid	Jun. 2022
	<i>Deep Sequential Models for Suicidal Ideation from Multiple Source Data</i> Signal Processing Group Universidad Carlos III de Madrid	Jul. 2018
TEACHING	<i>Data Mining, Machine Learning and Deep Learning</i> M.Sc. in Data Science and Artificial Intelligence EBIS, EUNEIZ, Microsoft	2024
	<i>Intermediate Machine Learning and Feature Engineering</i> BBVA, Fundación UC3M	2022 - 2024
	<i>Advanced Machine Learning</i> BBVA, Fundación UC3M	2023 - 2024
	<i>Intermediate Machine Learning and Feature Engineering</i> BBVA, Fundación UC3M	2022 - 2024
	<i>Machine Learning Fundamentals</i> BBVA, Fundación UC3M	2020 - 2024
	<i>Machine Learning II</i> Bachelor in Data Science and Engineering Teaching evaluation survey: 4.67/5 (2020), 4.63/5 (2022) Universidad Carlos III de Madrid	2020, 2022
	<i>Neural Networks</i> Bachelor in Data Science and Engineering Teaching evaluation survey: 4.13/5 Universidad Carlos III de Madrid	2022

	<i>Communications Theory</i> Bachelor in Telecommunications Engineering Bachelor in Sound and Image Engineering Teaching evaluation survey: 3.94/5, 4.14/5 Universidad Carlos III de Madrid	2022
REVIEWING	Workshop on Neural Network Weights as a New Data Modality (ICLR) International Conference on Machine Learning (ICML) Transactions on Machine Learning Research (TMLR) International Conference on Learning Representations (ICLR) Neural Information Processing Systems (NeurIPS) Selected as Top Reviewer (2024) Association for Uncertainty in Artificial Intelligence (UAI) Artificial Intelligence and Statistics (AISTATS) Selected as Top-10% Reviewer (2023) Journal of Machine Learning Research (JMLR) Journal of Biomedical and Health Informatics (JBHI) Workshop on Deep Generative Models for Health (DGM4H)	2025 - Present 2025 - Present 2025 - Present 2024 - Present 2024 - Present 2024 - Present 2022 - Present 2022 - Present 2018 - Present 2023
PROJECTS	INR-Gen: “Implicit Neural Representations Generative Modelling” Principal Investigator Budget: DKK 1.200.000,00 <i>Danish Data Science Academy & Novo Norkisk Foundation, Denmark</i> PRACTICO-CM: “Psiquiatría Computacional y Modelos Integrales de Comportamiento” Research team member Budget: 645.775,90 € <i>Consejería de Educación e Investigación, CAM, Spain</i> “Aprendizaje máquina y computación masiva para medicina personalizada y análisis cuantitativo del clima” Research team member	2023-2026 2019 - 2022 2019 - 2022

	<p>Budget: 124.509,00 € <i>Agencia Estatal de Investigación (AEI), Spain</i></p> <p>“Métodos computacionales bayesianos avanzados para estimación, predicción y control en sistemas multisensoriales complejos” 2016 - 2019 Research team member Budget: 314.600,00 € <i>Ministerio de Economía, Comercio y Empresa, Spain</i></p> <p>“Modelos profundos y explicables basados en variables latentes para salud mental” 2022 - 2025 Research team member Budget: 190.212,00 € <i>Agencia Estatal de Investigación (AEI), Spain</i></p>	
GRANTS	<p>FPU grant to fund doctoral internships 2021 <i>Spanish Ministry of Education</i></p> <p>FPU (<i>Formación de Profesorado Universitario</i>) grant to fund doctoral studies 2019 <i>Spanish Ministry of Education</i></p>	
COURSES	<p>Model Parallelism: Building and Deploying Large Neural Networks Oct. 2024 <i>NVIDIA</i></p> <p>AI and Machine Learning in Healthcare Summer School Sep. 2022 <i>Cambridge Centre for AI in Medicine University of Cambridge, UK</i></p> <p>Gaussian Process and Uncertainty Quantification Summer School, 2020. Sep. 2020 <i>University of Sheffield, UK</i></p> <p>Machine Learning Summer School (MLSS) Sep. 2019 <i>Skoltech Institute of Science and Technology, Moscow, Russia</i></p> <p>Machine Learning Frontiers in Precision Medicine (MLFPM) 1st Summer School Sep. 2019 <i>ETH Zurich, Switzerland</i></p> <p>Machine Learning Summer School (MLSS) Sep. 2018 <i>Universidad Autónoma de Madrid, Spain</i></p>	

- DISSERTATIONS
- I. Peis. **Advanced Inference and Representation Learning Methods in Variational Autoencoders.** *PhD Thesis Dissertation (Probabilistic Machine Learning)*, 2023. [pdf] [slides]
- I. Peis. **Deep sequential models with attention for psychiatric patients clinical assessment.** *M.Sc. Thesis Dissertation (Multimedia and Communications)*, 2018.
- I. Peis. **Activity monitoring in depressed patients in the hospital setting: a pilot study testing new methods of actigraphy data analysis for predicting clinical progress and date of hospital discharge.** *M.Sc. Thesis Dissertation (Telecommunications Engineering)*, 2018.
- I. Peis. **Hidden Markov Random Fields with alpha-stable distributions for brain Magnetic Resonance Images.** *B.Sc. Thesis Dissertation (Telecommunications Engineering)*, 2016.

PROGRAMMING SKILLS	Main Languages	PYTHON, MATLAB, C, C++, JAVA
	Frameworks	PYTORCH, TENSORFLOW, SKLEARN, STAN
	Others	R, SQL, HTML, JAVASCRIPT, CSS3