

# Ignacio Peis

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

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

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

	<i>Communications Theory</i> Bachelor in Telecommunications Engineering Bachelor in Sound and Image Engineering Teaching evaluation survey: 3.94/5, 4.14/5 <b>Universidad Carlos III de Madrid</b>	2022
REVIEWING	International Conference on Machine Learning ( <b>ICML</b> ) Transactions on Machine Learning Research ( <b>TMLR</b> ) International Conference on Learning Representations ( <b>ICLR</b> ) Neural Information Processing Systems ( <b>NeurIPS</b> ) Selected as <b>Top Reviewer</b> (2024) Association for Uncertainty in Artificial Intelligence ( <b>UAI</b> ) Artificial Intelligence and Statistics ( <b>AISTATS</b> ) Selected as <b>Top-10% Reviewer</b> (2023) Journal of Machine Learning Research ( <b>JMLR</b> ) Journal of Biomedical and Health Informatics ( <b>JBHI</b> ) Workshop on Deep Generative Models for Health ( <b>DGM4H</b> )	2025 - Present 2025 - Present 2024 - Present 2024 - Present 2024 - Present 2022 - Present 2022 - Present 2018 - Present 2023
PROJECTS	<b>INR-Gen: “Implicit Neural Representations Generative Modelling”</b> Principal Investigator Budget: DKK 1.200.000,00 <i>Danish Data Science Academy &amp; Novo Norkisk Foundation, Denmark</i>  <b>PRACTICO-CM: “Psiquiatría Computacional y Modelos Integrales de Comportamiento”</b> Research team member Budget: 645.775,90 € <i>Consejería de Educación e Investigación, CAM, Spain</i>  <b>“Aprendizaje máquina y computación masiva para medicina personalizada y análisis cuantitativo del clima”</b> Research team member Budget: 124.509,00 € <i>Agencia Estatal de Investigación (AEI), Spain</i>	2023-2026  2019 - 2022  2019 - 2022

	<p><b><i>“Métodos computacionales bayesianos avanzados para estimación, predicción y control en sistemas multisensoriales complejos”</i></b></p> <p>Research team member</p> <p>Budget: 314.600,00 €</p> <p><i>Ministerio de Economía, Comercio y Empresa, Spain</i></p>	2016 - 2019
	<p><b><i>“Modelos profundos y explicables basados en variables latentes para salud mental”</i></b></p> <p>Research team member</p> <p>Budget: 190.212,00 €</p> <p><i>Agencia Estatal de Investigación (AEI), Spain</i></p>	2022 - 2025
GRANTS	<p><b>FPU grant to fund doctoral internships</b></p> <p><i>Spanish Ministry of Education</i></p>	2021
	<p><b>FPU (<i>Formación de Profesorado Universitario</i>) grant to fund doctoral studies</b></p> <p><i>Spanish Ministry of Education</i></p>	2019
COURSES	<p><b>Model Parallelism: Building and Deploying Large Neural Networks</b></p> <p><i>NVIDIA</i></p>	Oct. 2024
	<p><b>AI and Machine Learning in Healthcare Summer School</b></p> <p><i>Cambridge Centre for AI in Medicine</i></p> <p><i>University of Cambridge, UK</i></p>	Sep. 2022
	<p><b>Gaussian Process and Uncertainty Quantification Summer School, 2020.</b></p> <p><i>University of Sheffield, UK</i></p>	Sep. 2020
	<p><b>Machine Learning Summer School (MLSS)</b></p> <p><i>Skoltech Institute of Science and Technology, Moscow, Russia</i></p>	Sep. 2019
	<p><b>Machine Learning Frontiers in Precision Medicine (MLFPM) 1st Summer School</b></p> <p><i>ETH Zurich, Switzerland</i></p>	Sep. 2019
	<p><b>Machine Learning Summer School (MLSS)</b></p> <p><i>Universidad Autónoma de Madrid, Spain</i></p>	Sep. 2018
	<p><b>Gaussian Process and Uncertainty Quantification Summer School, 2017.</b></p> <p><i>University of Sheffield, UK</i></p>	Sep. 2017

- 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	<b>Main Languages</b>	PYTHON, MATLAB, C, C++, JAVA
	<b>Frameworks</b>	PYTORCH, TENSORFLOW, SKLEARN, STAN
	<b>Others</b>	R, SQL, HTML, JAVASCRIPT, CSS3