Ignacio **Peis**

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Dept. of Applied Mathematics and Computer Science
Section for Cognitive Systems
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POSITIONS

Technical University of Denmark, DTU   Oct. 2023 - Present
Postdoctoral Researcher
Section for Cognitive Systems
Dept. of Applied Mathematics and Computer Science
(DTU Compute)

Fundación UC3M & BBVA   Dec. 2020 - Present
Course Instructor
Fundamentals, Intermediate and Advanced Machine
Learning courses for BBVA employees.

Universidad Carlos III de Madrid   Oct. 2019 - Sept. 2023
Predocoral Researcher and Teaching Assistant
Signal Processing Group
Supervisors: Prof. Antonio Artés Rodríguez
                      Dr. Pablo Martínez Olmos

University of Cambridge   Feb. 2021 - Feb. 2022
Visiting researcher
Machine Learning Group
Supervisor: Prof. José Miguel Hernández-Lobato

Universidad Carlos III de Madrid   Feb. 2017 - Sept. 2019
Research associate
Signal Processing Group
Supervisor: Prof. Antonio Artés Rodríguez

EDUCATION

Universidad Carlos III de Madrid   Oct 2018 - Oct 2023
PhD in Probabilistic Machine Learning
Cum Laude
Outstanding PhD Thesis Award

Advisors: Prof. Antonio Artés Rodríguez
                      Dr. Pablo Martínez Olmos

Universidad Carlos III de Madrid   Sep. 2016 - Jul. 2018
M.Sc. in Telecommunications Engineering
Dissertation with highest mark

Universidad Carlos III de Madrid   Sep. 2016 - Jul. 2018
M.Sc. in Multimedia and Communications
Dissertation with highest mark
One course with honors

Universidad de Granada   Sep. 2012 - Jul. 2016
B.Sc. in Telecommunications Engineering
Five courses with honors

TEACHING	*Advanced Machine Learning* **BBVA**, **Fundación UC3M**	2023
	Intermediate Machine Learning and Feature Engineering **BBVA**, **Fundación UC3M**	2022 - Present
	Machine Learning Fundamentals **BBVA**, **Fundación UC3M**	2020-Present
	Machine Learning II Bachelor in Data Science and Engineering Teaching evaluation survey: 4.67/5 (2020), 4.63/5 (2022) **Universidad Carlos III de Madrid**	2020, 2022
	Neural Networks Bachelor in Data Science and Engineering Teaching evaluation survey: 4.13/5 **Universidad Carlos III de Madrid**	2022
	Communications Theory 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	**Neural Information Processing Systems (NeurIPS)**	2024 - Present
	Association for Uncertainty in Artificial Intelligence (UAI)	2024 - Present
	Artificial Intelligence and Statistics (AISTATS) Selected as **Top-10% Reviewer** (2023)	2022 - Present
	Journal of Machine Learning Research (JMLR)	2022 - Present
	Journal of Biomedical and Health Informatics (JBHI)	2018 - Present

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**. *Proceedings of the 40th International Conference on Machine Learning, in Proceedings of Machine Learning Research 202:17660-17683*, 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 *Advances in Neural Information Processing Systems 35 (NeurIPS)*, 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-Moríñigo, 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
	Information Acquisition and Distributions of Functions with Deep Generative Models **Pioneer Centre for Artificial Intelligence, Copenhagen, Denmark** [slides]	Jun. 2023
	Missing Data Imputation and Acquisition with Deep Hierarchical Models and Hamiltonian Monte Carlo Oral (video) and poster presentation **NeurIPS22, New Orleans, USA** [slides] [video] [poster]	Dec. 2022
	Missing Data Imputation and Acquisition with Deep Hierarchical Models and Hamiltonian Monte Carlo Signal Processing Group **Universidad Carlos III de Madrid**	Jun. 2022
	Deep Sequential Models for Suicidal Ideation from Multiple Source Data Signal Processing Group **Universidad Carlos III de Madrid**	Jul. 2018

AWARDS	***Outstanding PhD Thesis Award*** *Universidad Carlos III de Madrid*	2023
	Postdoc Fellowship Award *Danish Data Science Academy*	2023

Novo Nordisk Foundation

GRANTS	**FPU grant to fund doctoral internships** *Spanish Ministry of Education*	2021
	FPU (*Formación de Profesorado Universitario*) grant to fund doctoral studies *Spanish Ministry of Education*	2019

COURSES	**AI and Machine Learning in Healthcare Summer School** *Cambridge Centre for AI in Medicine* *University of Cambridge, UK*	Sep. 2022
	Gaussian Process and Uncertainty Quantification Summer School, 2020. *University of Sheffield, UK*	Sep. 2020
	Machine Learning Summer School (MLSS) *Skoltech Institute of Science and Technology, Moscow, Russia*	Sep. 2019
	Machine Learning Frontiers in Precision Medicine (MLFPM) 1st Summer School *ETH Zurich, Switzerland*	Sep. 2019
	Machine Learning Summer School (MLSS) *Universidad Autónoma de Madrid, Spain*	Sep. 2018
	Gaussian Process and Uncertainty Quantification Summer School, 2017. *University of Sheffield, UK*	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.*

LANGUAGES	**Spanish**	Mothertongue
	English	Advanced

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