## Ignacio **Peis**

Technical University of Denmark, DTU

Dept. of Applied Mathematics and Computer Science

Section for Cognitive Systems

2800 Kgs. Lyngby

Denmark

ipeis@tsc.uc3m.es Building 321

Phone: (+34) 91 624 8839

Website: https://ipeis.github.io/

Google Scholar

Positions Technical University of Denmark, DTU

Postdoctoral Researcher

Section for Cognitive Systems

Dept. of Applied Mathematics and Computer Science

(DTU Compute)

Universidad Carlos III de Madrid

Predoctoral Researcher and Teaching Assistant

Signal Processing Group

Supervisors: Prof. Antonio Artés Rodríguez

Dr. Pablo Martínez Olmos

Fundación UC3M

Course Instructor

Fundamentals, Intermediate and Advanced Machine

Learning courses for BBVA employees.

University of Cambridge

Visiting researcher
Machine Learning Group

Supervisor: Prof. José Miguel Hernández-Lobato

Universidad Carlos III de Madrid

Research associate

Signal Processing Group

Supervisor: Prof. Antonio Artés Rodríguez

EDUCATION Universidad Carlos III de Madrid

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

M.Sc. in Telecommunications Engineering

Dissertation with highest mark

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Oct. 2023 - Present

Oct. 2019 - Sept. 2023

Dec. 2020 - Present

Feb. 2021 - Feb. 2022

Feb. 2017 - Sept. 2019

Oct 2018 - Oct 2023

Sep. 2016 - Jul. 2018

	Universidad Carlos III de Madrid M.Sc. in Multimedia and Communications Dissertation with highest mark One course with honors	Sep. 2016 - Jul. 2018
	Universidad de Granada B.Sc. in Telecommunications Engineering Five courses with honors	Sep. 2012 - Jul. 2016
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	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
	Workshop on Deep Generative Models for Health (DGM4H)	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. 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]

TALKS	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 Hi- erarchical 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 Hi- erarchical 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 Novo Nordisk Foundation	2023
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 Main Languages PYTHON, MATLAB, C, JAVA SKILLS

> Frameworks PyTorch, TensorFlow, sklearn, Stan Others R, C++, SQL, HTML, JAVASCRIPT, CSS3

> > Last updated: December 2, 2023