Vasiliki Tassopoulou

+1-267-206-3881 • tassopoulouvasiliki@gmail.com • vtass@seas.upenn.edu

Website • Github • Google Scholar • LinkedIn • X •

Research Interests

Probabilistic Machine Learning, Time-series forecasting, Uncertainty Quantification, Conformal Prediction.

Education

School of Engineering and Applied Science, University of Pennsylvania *Sep 2020 – Present*

PhD Candidate in Bioengineering, AI2D Center for AI and Data Science

- Advisor: Prof. Christos Davatzikos Co-Advisor: Prof. Haochang Shou
- Research focus: Deep kernel learning for time-series forcasting - irrular and sparse biomarker data.

Wharton School, University of Pennsylvania *Jan 2023 – Mar 2025*

MSc Statistics and Data Science

- Advisor: Prof. Edgar Dobriban
- Relevant coursework: Bayesian Modeling, Advanced Statistical Inference, Applied Econometrics, Statistical Learning Theory

National Technical University of Athens *Nov 2013 – Nov 2019*

Diploma in Electrical and Computer Engineering (5-year joint BSc & MEng)

- Major: Computer Software, Signals, Control and Robotics; Minor: Computer Systems, Bioengineering.
- Advisor: Prof. Petros Maragos
- Thesis: *An Exploration of Deep Learning Architectures for Handwritten Text Recognition*
- GPA: 8.56/10

Research Experience

Research Assistant, Artificial Intelligence in Biomedical Imaging Lab *Aug 2020 – Present*

Supervisors: Prof. Christos Davatzikos, Prof. Haochang Shou

- Affiliated with the AI2D Center for AI/Data Science for Integrated Diagnostics and Penn Statistics in Imaging and Visualization Endeavor (PennSIVE).
- Published work in top ML venues (**ICLR**, **NeurIPS**), contributing methods in biomarker forecasting, uncertainty quantification and clinical translation.

Undergraduate Research Assistant, Computer Vision and Speech Communication Lab *Mar 2018 – Nov 2019*

Supervisor: Prof. Petros Maragos

- Completed thesis on *An Exploration of Deep Learning Architectures for Handwritten Text Recognition*, focusing on sequence modeling and statistical learning for structured data.
- Published at **ICPR 2020**: Enhanced sequence recognition using N-gram decomposition and multitask learning
- Tools: Python, PyTorch; experience with CNNs, sequence models, regularization techniques, and optimization for large-scale training.

Industry Experience

Machine Learning Researcher, NASA Frontier Development Lab *June 2021 – Aug 2021*

Supervised by Dr. Piotr Bilinski and Dr. Frank Soboczenski

- Developed automated systems for analyzing and generating structured reports of natural events using metadata-driven modeling and **Large Language Models**.
- Built and fine-tuned large-scale models with **PyTorch, PyTorch Lightning, and Hugging Face**, integrating optimization, evaluation, and monitoring pipelines.
- Deployed models on **Google Cloud Platform** and managed experiment tracking using Weights&Biases.

Machine Learning Research Intern, RetinAI Medical AG *Dec 2019 – Aug 2020*

Supervised by Dr. Sandro De Zanet

- Developed statistical methods for **image data validation** and **out-of-distribution detection** using kernel density estimation and feature-based uncertainty metrics.
- Built predictive models for **disease progression**, involving regression over temporal clinical variables and uncertainty-aware deep learning techniques.
- Implemented end-to-end ML pipelines in **Python and PyTorch**, including preprocessing, modeling, optimization, and validation.

Machine Learning Intern, DeepSea Technologies *Sep 2018 – Feb 2019*

Research and Development Department

- Maintained and enhanced production ML frameworks using **TensorFlow, Python, and Flask**, improving model reliability and deployment workflows.
- Conducted EDA and built **regression models for vessel power–velocity prediction**

Software Engineering Intern, Nokia TC Athens *Sep 2017 – Mar 2018*

Research and Development Department

- Performed unit testing and contributed to automated QA processes for large-scale distributed systems.
- Automated testing pipelines and improved development workflow using **JIRA** and CI tooling, significantly increasing engineering efficiency.

Publications

- **V. Tassopoulou** et al., "Personalized Prediction of Brain Trajectories in Aging and Neurodegeneration: Evidence from a Large Multi-Cohort Longitudinal Study" - Manuscript In Revisions (**Nature Aging**)
- **V. Tassopoulou** et al., "Uncertainty-Calibrated Prediction of Randomly-Timed Biomarker Trajectories with Conformal Bands" - **NeurIPS 2025**
- **V. Tassopoulou** et al., "Adaptive Shrinkage Estimation for Personalized Deep Kernel Regression in Modeling Brain Trajectories" - **ICLR 2025**
- SS Chintapalli et al., "Generative models of MRI-derived neuroimaging features and associated dataset of 18,000 samples", **Nature Scientific Data 2024**
- **V. Tassopoulou** et al., "Probabilistic Staging in Alzheimer's Disease with Deep Kernel Learning", **OHBM 2024**
- R. Wang et al., "Applications of Generative Adversarial Networks in Neuroimaging and Clinical Neuroscience", **Neuroimage 2023**
- **V. Tassopoulou** et al., "Deep Kernel Learning with Temporal Gaussian Processes for Clinical Variable Prediction in Alzheimer's Disease", **ML4H 2022**
- **V. Tassopoulou** et al., "Generating informative and accurate descriptions of natural hazards and phenomena using large transformer-based models", **AGU Fall Meeting 2021**
- **V. Tassopoulou** et al., "Automatic Narrative Generation with Earth Science TRansformer", **NVIDIA GTC 2022**
- **V. Tassopoulou**, G. Retsinas and P. Maragos, "Enhancing Handwritten Text Recognition with N-gram sequence decomposition and multitask learning", **ICPR 2020**

Technical Skills, Frameworks

Languages: Python,R, C, Matlab, ML NJ, Prolog

Machine Learning/Deep Learning Frameworks: Pytorch, Pytorch Lightning, Pyro, GPytorch

General: Unix based OS, MS OS, LaTeX, Version Control (Git)

Languages

English (Proficient-C2), German (Intermediate-B1), Greek (Native)

Honors-Awards

Leventis Foundation Scholarship of Academic Excellence *July 2024*
Awarded 6000 USD for my PhD studies

Leventis Foundation Scholarship of Academic Excellence *July 2023*
Awarded 6000 USD for my PhD studies

Gerondelis Foundation Scholarship of Academic Excellence *Nov 2021*
Awarded 5000 USD for my PhD studies

1st Year PhD Fellowship - University of Pennsylvania *Aug 2020*
Awarded full scholarship of 80000 USD for the first year of my PhD Studies

The Great Moment of Education Scholarship *Oct 2013*
Awarded 1000 EU because I achieved the highest score in National University Entrance Exams in my school.

Societies, Affiliations and Service

Co-organizer of **WiML Social @ ICLR 2025**

Reviewer at **ICLR 2026**, **NeuRIPS 2025**, **Nature Aging**, **ICLR 2025**, **ISBI 2024**, **MLCN 2024**, **WiML Workshop @ NeurIPS 2024**