

Vasiliki Tassopoulou

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RESEARCH INTERESTS

Probabilistic and Generative Modeling for Longitudinal Data, Uncertainty Quantification, Conformal Prediction

EDUCATION

School of Engineering and Applied Science, University of Pennsylvania	<i>Sep 2020 – Present</i>
<i>PhD Candidate in Bioengineering, AI2D: Center for AI and Data Science for Integrated Diagnostics</i> 	
• Advisor: Prof. Christos Davatzikos 	
• Co-Advisor: Prof. Haochang Shou 	
Wharton School, University of Pennsylvania	<i>Jan 2023 – March 2025</i>
<i>MSc Statistics and Data Science</i>	
• Advisor: Prof. Edgar Dobriban 	
• Courses: Bayesian Modeling, Modern Data Mining, Advanced Statistical Inference	
National Technical University of Athens	<i>Nov 2013 – Nov 2019</i>
<i>Diploma in Electrical and Computer Engineering (5 year degree; 300 ECTS; joint BSc & MEng)</i>	
• 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	<i>Aug 2020 – Present</i>
<i>Supervisor : Dr. Christos Davatzikos , Dr. Haochang Shou </i>	
• Affiliations: AI2D Center for AI/Data Science for Integrated Diagnostics, Penn Statistics in Imaging and Visualization Endeavor (PennSIVE)	
• Conduct my PhD Research on Probabilistic and Generative Modeling for Longitudinal Biomarkers	
Undergraduate Research Assistant, Computer Vision and Speech Communication Lab	<i>Mar 2018 – Nov 2019</i>
<i>Supervisor : Dr. Petros Maragos </i>	
• Conducted my Master Thesis "An Exploration of Deep Learning Architectures on Handwritten Text Recognition"	
• Published on ICPR 2020 : Enhancing Handwritten Text Recognition with N-Gram Sequence Decomposition and Multitask Learning	
• Full Convolutional Model for HTR, Text Denoising for HTR error correction	
• Tools : Pytorch, Python	

INDUSTRY EXPERIENCE

Machine Learning Researcher, NASA Frontier Development Lab	<i>June 2021 – Aug 2021</i>
<i>Supervised by Dr. Piotr Bilinski  and Dr. Frank Soboczenski </i>	
• Developed automated systems for reporting natural events using metadata.	
• Tools: Pytorch, Pytorch Lightning, Hugging Face, GCP, and Weights&Biases for model development and deployment.	
Machine Learning Research Intern, RetinAI Medical AG	<i>Dec 2019 – Aug 2020</i>
<i>Supervised by Dr. Sandro De Zanet </i>	
• Worked on automatic image data validation and out-of-distribution detection for OCT images using Kernel Density Estimation.	
• Modeled the progression of Geographic Atrophy using deep learning techniques.	
• Employed Pytorch and Python for all developments.	
Machine Learning Intern, DeepSea Technologies	<i>Sep 2018 – Feb 2019</i>
<i>Research and Development Department</i>	
• Maintained and enhanced machine learning frameworks using TensorFlow, Python, and Python Flask.	

- Conducted exploratory data analysis and implemented regression models for power-velocity curves of various vessels.

Software Engineering Intern, Nokia TC Athens

Sep 2017 – Mar 2018

Research and Development Department

- Participated in unit testing and managed JIRA for project tracking and management.
- Responsible for automating testing processes, significantly improving testing 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 Preparation
- **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
Awarded 6000 USD for my PhD studies

July 2024

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

July 2023

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

Nov 2021

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

Aug 2020

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

Oct 2013

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**