

Nikolaos Spanos

PhD Student - Software Engineer - Machine Learning Engineer

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EXPERIENCE

CBICA Lab, University of Pennsylvania — *Visiting Scholar - Machine Learning Engineer*

September 2025 – February 2026

Software Engineer at Center for Biomedical Image Computing and Analytics in the University of Pennsylvania. Conducting research involving modern generative modeling techniques for longitudinal data forecasting and generation. Research involving diffusion models, score matching, flow matching, continuous normalizing flows and transition matching

AILS Lab, NTUA — *Software Engineer - Machine Learning Engineer*

October 2023 – Present

Software Engineer at Artificial Intelligence and Learning Systems Laboratory in the National Technical University of Athens. Active research as PhD student in computer vision applications, generative AI and domain generalization. Active involvement in European Horizon Projects for practical applications of computer vision in industry. Technical support for all AILS AWS functions (EC2 instances, S3 Buckets etc.)

AILS Lab, NTUA — *Teacher's Assistant*

October 2023 – Present

Teaching Assistant at National Technical University of Athens in Artificial Intelligence and Machine Learning curriculum (Machine Learning, Neural Networks and Deep Learning, Advanced Subjects of Artificial Intelligence)

PUBLICATIONS

V-CECE: Visual Counterfactual Explanations via Conceptual Edits, *Nikolaos Spanos, Maria Lymperaiou, Giorgos Filandrianos, Konstantinos Thomas, Athanasios Voulodimos, Giorgos Stamou* — *Neural Information Processing Systems (NeurIPS 2025)*

Analyze-Prompt-Reason: A Collaborative Agent-Based Framework for Multi-Image Vision-Language Reasoning, *Angelos Vlachos, Giorgos Filandrianos, Maria Lymperaiou, Nikolaos Spanos, Ilias Mitsouras, Vasileios Karampinis, Athanasios Voulodimos* — *ACM Multimedia Proceedings 2025 (ACM MM Challenges 2025)*

Explaining Vision GNNs: A Semantic and Visual Analysis of Graph-based Image Classification, *Nikolaos Chaidos, Aggeliki Dimitriou, Nikolaos Spanos, Athanasios Voulodimos, Giorgos Stamou* — *World Conference on Explainable Artificial Intelligence (xAI 2025)*

AILS-NTUA at SemEval-2025 Task 3: Leveraging Large Language Models and Translation Strategies for Multilingual Hallucination Detection, *Dimitra Karkani, Maria Lymperaiou, Giorgos Filandrianos, Nikolaos Spanos, Athanasios Voulodimos, Giorgos Stamou* — *First Place at SemEval Challenges 2025*

Complex Style Image Transformations for Domain Generalization in Medical Images, *Nikolaos Spanos, Anastasios Arsenos, Paraskevi-Antonia Theofilou, Paraskevi Tzouveli, Athanasios Voulodimos, Stefanos Kollias* — *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, 2024, pp. 5036-5045*

SKILLS

Extensive proficiency in Python and tools thereof (PyTorch, TensorFlow, Pandas, OpenCV)

Extensive knowledge of AWS Services (EC2, Bedrock, S3)

Extensive knowledge of C, C++, MATLAB

Familiarity with Verilog, CUDA, Bash.

Theoretical background in Machine Learning, Computer Vision, Natural Language Processing, Pattern Recognition

Theoretical and practical background in Reinforcement learning

LANGUAGES

Greek (native), English (native level), German

EDUCATION

School of ECE, NTUA — *PhD Student*

October 2023 - Present

Computer Vision Applied Applications, Generative AI, LLMs and VLMS, State Space Models, 3D Computer Vision

School of ECE, NTUA — *M.Sc./M.Eng.*

October 2018 - October 2023

Undergraduate degree in Electrical and Computer Engineering, equivalent to Master's of Engineering degrees. Majored in Electronics, Robotic Systems and Machine Learning. Course "flows" selected: Electronic Systems, Computer Software, Signals, Automatic Control and Robotics, Deep Learning, Artificial Intelligence. 300 ECTS equivalent, 3.46/4 GPA