

Panagiotis Lymperopoulos

Seeking Internship Opportunities. Availability: Spring, Summer, Fall 2024

panliberopoulos@gmail.com · (424) 5271948 · panlybero.github.io

Expected Graduation: 2025

Education

Tufts University

PhD Candidate in Computer Science

MS in Data Science

August 2019 - June 2025

University of California, Los Angeles (UCLA)

Bachelor of Science in Computational and Systems Biology

September 2015 - June 2019

Relevant Coursework: Deep Learning, Machine Learning for Graph Data, Reinforcement Learning, Mathematical Statistics, Natural Language Processing, C++ Programming, Algorithms and Complexity, Bioinformatics

Skills: Python, Java, PyTorch, TensorFlow, nltk, Graph Neural Networks, LLMs, Reinforcement Learning, Variational Inference

Work Experience

Data Science Intern at Optechain

June 2021 - August 2021

- Implemented ML pipeline for Data Cleaning, Training and Deployment of time-series prediction models on AzureML
- Deployed existing open-source computer-vision models on AzureML for immediate use by end-users.
- Developed infrastructure on the entire stack for querying deployed models, submitting results to database and serving them to end-users.

Research Experience

Novelty Detection in Open Environments

January 2020 - May 2023

- Developing methods for novelty detection on visual and structured data for DARPA's SAIL-ON initiative.
- Integrating novelty detection into planning and reinforcement learning autonomous agents to inform exploration and behavioral adaptation.
- Presented work on novelty detection for open-world AI at NeurIPS 2022 Workshop on Robustness in Sequence Modeling (See Publications)
- Developed a neurosymbolic cognitive architecture for novelty-aware agents.
- Submitted work presenting framework and algorithms for novelty-aware agents to Artificial Intelligence Journal special issue on Open-World AI. (Under review)

Accelerating infeasibility analysis with Deep Learning

September 2022 - September 2023

- Created graph neural network-based algorithm for accelerating infeasibility analysis of boolean constraint satisfaction problems
- Evaluated method on multiple benchmarks and showed significant performance improvement.
- Submitted manuscript describing method and results to AISTATS 2024 (Under review)

Open-world Modeling of other Agents

May 2023 - September 2023

- Developed novel method for online modeling of agent behavior from observations, including hypothesizing unobservable agent-internal states.
- Paper describing method accepted for publication and oral presentation at AAMAS2024.

COVID-19 Hospital Forecasting

March 2020 - May 2021

- Developed semi-markov forecasting model for patient trajectories.
- Worked with Boston hospitals to assist in predicting ICU and ventilator occupancy. (See Publications)
- Integrated existing epidemiological models and public COVID-19 datasets to produce reliable forecasts.

Concept Wikification for COVID-19

June 2020 - November 2020

- Created a wikification dataset tailored for Covid-19 related texts.
- Trained multiple BERT-based transformer models
- Developed end-to-end wikification system for scientific papers related to covid-19. (See Publications)

Medical Image Denoising

November 2019 - December 2020

- Implemented deep image denoising algorithms on auto-fluorescent microscopy images. (See Publications)
- Demonstrated potential for transfer learning of denoising models across different tissues and cell types.

Publications

- Lymperopoulos, P., Qiu, H., & Min, B. (2020). Concept wikification for COVID-19. *Proceedings of the 1st Workshop on NLP for COVID-19 (Part 2) at EMNLP 2020*. <https://www.aclweb.org/anthology/2020.nlpCOVID19-2.29>
- Brummer, A. B., Lymperopoulos, P., Shen, J., Tekin, E., Bentley, L. P., Buzzard, V., Gray, A., Oliveras, I., Enquist, B. J., & Savage, V. M. (2021). Branching principles of animal and plant networks identified by combining extensive data, machine learning and modelling. *Journal of the Royal Society Interface*, 18(174), 20200624.
- Gopalakrishnan, S., Soni, U., Thai, T., Lymperopoulos, P., Scheutz, M., & Kambhampati, S. (2021). Integrating planning, execution and monitoring in the presence of open world novelties: Case study of an open world monopoly solver. *CoRR*, abs/2107.04303. <https://arxiv.org/abs/2107.04303>
- Lee, A. H., Lymperopoulos, P., Cohen, J. T., Wong, J. B., & Hughes, M. C. (2021). Forecasting covid-19 counts at a single hospital: A hierarchical bayesian approach. *Poster in ICLR 2021 Workshop on Machine Learning for Preventing and Combating Pandemics*, arXiv preprint arXiv:2104.09327.
- Polleys, C. M., Lymperopoulos, P., Thieu, H.-T., Genega, E., Liu, L., & Georgakoudi, I. (2021). Deep-learning-based image restoration of depth-resolved, label-free, two-photon images for the quantitative morphological and functional characterization of human cervical tissues. *Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues XIX*, 11647, 116470Z.
- Feeney, P., Schneider, S., Lymperopoulos, P., Liu, L., Scheutz, M., & Hughes, M. C. (2022). Novelcraft: A dataset for novelty detection and discovery in open worlds. *arXiv preprint arXiv:2206.11736*.
- Panagiotis Lymperopoulos, L. L., Yukun Li. (2022). Exploiting variable correlation with masked modeling for anomaly detection in time series. *NeurIPS 2022 Workshop on Robustness in Sequence Modeling*. <https://openreview.net/forum?id=TCJuzs585W>