Giorgos Papadakis

Applied Mathematician & Machine Learning Engineer

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Professional Summary

Results-driven Machine Learning Engineer with a strong background in applied mathematics, deep learning, and data science. Passionate about solving real-world problems using AI, with hands-on experience in image segmentation, time series forecasting, and explainable AI. Strong communication skills with experience in teaching and mentoring.

Skills

Technical Skills: Python, TensorFlow, PyTorch, Scikit-learn, SHAP, R, Deep Learning, Machine Learning, Time Series Analysis, Computer Vision, NLP, Data Visualization
Cloud Tools: Docker, MLflow, FastAPI, Git, Render.com
Soft Skills: Problem-Solving, Team Collaboration, Communication, Adaptability, Team Management

Experience

Machine and Deep Learning Engineer 2023 – Today
Freelance / Personal Projects
- Developed deep learning solutions for medical imaging and finance applications.
- Experience in deploying real-time ML systems using Docker, MLflow, and FastAPI, achieving subsecond API responses.
- Achieved a 95% R^2 score in an AI competition that predicted urban heat islands with CNN based on attention to geospatial data analysis.
- See more in my GitHub page.

Mathematics Teacher
Secondary Education School "BOLI" 2021 – Today
-Delivered mathematics and programming courses to students 12-18 years of age and univercity level, adapting teaching methods to diverse learning styles and academic levels.
- Completed full-year syllabus and exam preparation on schedule, achieving a 100% student success rate in end-of-year evaluations.
-Mentored students preparing for national exams, demonstrating strong goal-oriented planning and personalized instruction.
-Developed adaptable teaching strategies to explain complex subjects, reinforcing communication and content simplification skills valuable in stakeholder collaboration.
-Managed multiple class timelines and responsibilities simultaneously, demonstrating strong multitasking and project management abilities.

Education

Master's Degree in Data Science and Machine Learning 2021 – 2023
National Technical University of Athens (NTUA), School of Electrical and Computer Engineering
Grade: 8.61 / 10

Thesis: Recognition of Cancer Tumors Using Deep Learning Techniques
- Developed and optimized UNet and Attention UNet models, achieving performance close to state-of-the-art benchmarks.
- Applied advanced image segmentation techniques and model evaluation metrics using TensorFlow and Keras.

Bachelor's Degree in Applied Mathematics 2016 – 2020
National and Kapodistrian University of Athens (NKUA), Department of Mathematics
Grade: 7.50 / 10

Certifications

5-Day Gen AI Intensive Course with Google March 2025
Participated in an intensive program focusing on foundational models, prompt engineering, embeddings, and the development of generative AI agents. The course included hands-on labs and sessions with Google experts, enhancing practical skills in deploying GenAI solutions.

Machine Learning Explainability January 2025
Certificate from Kaggle for successfully completing Machine Learning Explainability with Shap Library.

Time Series Analysis January 2025
Certificate from Kaggle for successfully completing Time Series training with basic and hybrid models.

Machine Learning with Python: Zero to GBMs June - August 2021
Certificate from Jovian, representing approximately 60 hours of coursework in machine learning with sklearn.

Selected Projects

Financial Risk Classification & Cloud Deployment with FastAPI and MLflow
Tools: Python, FastAPI, Docker, MLflow, Scikit-learn, XGBoost, Joblib, Render.com
Duration: April 2025 - May 2025

- Designed and deployed a machine learning inference API for financial risk prediction using FastAPI.
- Integrated both local and MLflow-tracked models with dynamic environment-based loading.
- Dockerized and deployed the application on Render.com with health check, achieving $<$ 1s response time on live API.
- Structured project for collaborative use with training notebooks, model versioning, and CI-friendly container design.
- Validated predictions using test set, achieving over 80% precision in risk classification.

The 2025 EY Open Science AI and Data Challenge: Cooling Urban Heat Islands:
Tools: Python, TensorFlow, Keras, NumPy, Pandas, Planetary Computer
Duration: January 2025 – March 2025

- Extract geospatial satelite data and convert them into feature images.
- Designe a Attention based CNN that predicts the UHI values of a pair of coordinates.
- R2 score 95% on the submission set gave me $4^{th}/8$ place in Greece and $98^{th}/377$ place globally.

- Model reduced RMSE by 25% compared to baseline.

Stock Values Prediction:
Tools: Python, TensorFlow, Keras, NumPy, Pandas, Yahoo Finance, Hugging Face
Duration: July 2024 – November 2024

- Designed basic models, like RNN, LSTM and GRU, but also and Hybrid Models that use the basic models and Sentiment Analysis on news headlines to predict the Close value of Microsoft stock.
- Achieved greate scores of R^2 metric, with scores from the best models above 90%.

Brain Tumor Classification with Transfer Learning:
Tools: Python, TensorFlow, Keras, NumPy, Pandas, PIL
Duration: March 2024

- Designed a deep learning system based on Transfer Learning.
- Use of VGG16 as a backbone feature extractor - Attention Layer for features enhance and Fully Connected Neural Network as head for the classifiction.
- Achieved close to state-of-the-art results in accuracy (90 %).

Master Thesis: Cancer Tumor Recognition System:
Tools: Python, TensorFlow, Keras, NumPy, Pandas
Duration: September 2022 – July 2023

- Designed a deep learning system based on UNet and Attention UNet for image segmentation.
- Achieved close to state-of-the-art results in IoU(60%) and Dice Coefficient (73 %) without fine tuning or extra training.

PyTorch Tutorials:
Tools: Python, PyTorch, Keras, sklearn
Duration: September 2023 – March 2024

- Collection of Jupyter Notebooks that cover the basics of Machine Learning.
- Implementations of Linear/Logistic Regression, Artificial Neural Network(ANN), Convolutional Neural Network (CNN), Recurrent Neural Network (RNN) and Long Short Term Memory (LSTM)

More projects are on the way...See full projects implementations and demos on GitHub.

Additional Information

Greek: Native
English: Advanced (C1 Level)
Languages: Greek (Native), English (C1 - Advanced)
Military Service: Infantry Soldier (2020 - 2021)
Hobbies: Reading (AI, ML, Deep Learning), Pankration (Athlete and Federation Representative)