Nikolaos Roufas

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Education

BSc Computer Science, Ionian University, Corfu, Greece 09/2024 – Present

- Coursework focused on Artificial Intelligence, Machine Learning, Software Engineering, and Theoretical Computer Science.
- Conducting research on Transformer-based models in Finance and Climate Discourse Analysis.
- Participated in the Erasmus+ WICT Data Science program, acquiring hands-on experience in data analysis and applied ML.
- First author in peer-reviewed publications presented at international AI conferences.

BSc Computer Science, Sapienza Università di Roma, Rome, Italy 10/2025 – 02/2026

- Erasmus+ exchange semester focusing on Artificial Intelligence, Machine Learning, and Data Science.
- Engaged in advanced coursework and collaborative projects in applied AI and software engineering.
- Enhanced international research experience, building on prior work in Transformer-based models and Explainable AI.
- Continued development of peer-reviewed research contributions presented at international AI conferences.

Publications

- Karamitsos, I., **Roufas, N.**, Al-Hussaeni, K., & Kanavos, A.* (2025). *LegNER: A Domain-Adapted Transformer for Legal Named Entity Recognition and Text Anonymization.* Frontiers in Artificial Intelligence.
- **Roufas, N.**, Mohasseb, A., Karamitsos, I., & Kanavos, A.* (2025). *Analyzing Public Discourse and Sentiment in Climate Change Discussions Using Transformer-Based Models.* In Proceedings of the 21st International Conference on Artificial Intelligence Applications and Innovations (AIAI 2025).
- **Roufas, N.**, Karamitsos, I., Al-Hussaeni, K., Gerogiannis, V. C., & Kanavos, A.* (2025). *Efficient Protein Folding with Transformer Models Using the Performer Architecture.* In *Proceedings of the International Conference on ICT Applications (ICTA 2025).*

Honours and Awards

- **Academic Excellence Award (2024)** – First General High School of Florina
- **Creativity Award (2017)** – WRO Hellas

Experience

Undergraduate Researcher, Ionian University, Corfu, Greece 09/2024 – Present

- Designed quantum-enhanced algorithms for classical machine learning tasks including classification and regression.
- Developed an open-source PyPi library that integrates quantum computing with machine learning workflows.
- Built tools enabling researchers to explore quantum advantages in real-world ML scenarios.

Skills

Programming Languages: Python (NumPy, Pandas, TensorFlow, Scikit-learn, PyTorch), C++, JavaScript
Machine Learning & AI: Deep Learning, Computer Vision, Natural Language Processing, Supervised & Unsupervised Learning, Linear Algebra
Data Science & Analytics: Data Analysis, Mathematics, Statistics, Research Methodology
Data Visualization: Matplotlib, Seaborn, Tableau
Tools & Environments: Git, Linux, Jupyter Notebook, VS Code, Vim
Languages: Greek (Native), English (C2 Proficient – LRN 95%), French (B1), German (B1), Portuguese (A2)
Certifications: Erasmus+ WICT Data Science

Projects

Quantum Machine Learning System 01/2025 – Present

- Developed an open-source framework integrating quantum computing with machine learning.
- Created quantum-enhanced algorithms for classification, regression, and other ML tasks.
- Implemented tools for researchers exploring quantum advantages in machine learning.
- Published as a PyPi library with documentation and example implementations.

LLM for Real-Time Financial Forecasting 11/2024 – Present

- Built a financial forecasting tool leveraging large language models to predict market trends.
- Developed neural networks for analyzing financial data and generating investment insights.
- Implemented NLP techniques to process financial news and reports for predictive modeling.
- Open-sourced the project on GitHub with comprehensive documentation.

Syrian Conflict Sentiment Analysis 12/2024 – 03/2025

- Developed a sentiment analysis tool using Python, VADER, and NLP techniques to analyze 5,000+ social media posts.
- Conducted data-driven research to uncover patterns in humanitarian impact and media representation.
- Achieved 85% accuracy in classifying sentiments (positive, neutral, negative).
- Published findings on Kaggle with data mining methodologies and visualization techniques.

CV Analyzer: AI-Powered Resume Optimization 10/2024 – 02/2025

- Created a Flask-based web application using OpenAI GPT-4 to analyze CVs against job descriptions.
- Implemented machine learning algorithms to identify optimization opportunities in resumes.
- Developed a system that provides tailored improvement suggestions for job applicants.
- Open-sourced the project on GitHub with deployment instructions and API documentation.