Nick **Iliopoulos**

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Summary

Research Scientist with EU citizenship and 5+ years of experience in data science and machine learning, specializing in the development and deployment of AI-driven solutions. Proven ability to architect and oversee the entire model lifecycle, with expertise in transformer-based models, GenAI, and cloud computing. Skilled in Python and machine learning frameworks including SciPy, Scikit-learn, TensorFlow, and PyTorch.

Experience

09/2022 – Present **Research Scientist** Tokyo, Japan

Rakuten

- Worked closely with FX, CFD, crypto traders, and portfolio managers to identify and resolve production issues, ensuring smooth trading operations.
- Created and maintained fully automated trading systems that operate without human intervention, ensuring continuous market engagement that generate $14M PNL.
- Designed high-frequency market-making algorithms boosting pricing precision by 16% across 15+ currency pairs, reducing market risk and enhancing real-time trading decision-making.
- Applied graph theory and community detection techniques (Louvain algorithm and Clique Percolation method) to identify synchronized traders achieving over $300K in monthly PNL.
- Developed and trained transformer-based models for text analysis, improving sentiment analysis accuracy by 25%.
- Led the architecture and deployment of a GenAI application using RAG and vector databases, enhancing information retrieval efficiency by 30%.
- Implemented and managed machine learning models on Azure, leveraging cloud infrastructure for scalability and performance.
- Oversaw the entire model lifecycle including data preparation, model design, training, validation, deployment, and monitoring, adhering to MLOps best practices.

10/2021 – 09/2022 **Visiting Researcher** Tokyo, Japan

The University of Tokyo

- Evaluated the influence of the COVID-19 pandemic on residential electricity consumption through a nonlinear autoregressive neural network with exogenous inputs (NARX).
- Developed a Python-based statistical analysis course for students, emphasizing applied statistics and modern code packages with a strong focus on visual outputs.
- Guided, trained and advised master's and Ph.D. level students on research techniques, methods and procedures.

09/2019 – 01/2020 **Research Scientist** Tokyo, Japan

Waseda University

- Developed an XGBoost-based algorithm to forecast the flexibility of residential loads, enhancing provincial grid energy efficiency by 10%.
- Collaborated with academia and industry in the energy sector in Japan and Canada, presenting my work on demand response to foster innovation and practical application.

01/2018 – 03/2018 **Research Scientist** Kyoto, Japan
Kyoto University
- Conducted an in-depth analysis of the main opportunities and challenges of the low-emission development strategies of Tokyo's built environment and synthesized the results in a peer-reviewed publication.
- Served as a scientific correspondent for various organizations, translating complex scientific research into accessible language for the general public.

04/2015 – 04/2016 **Data Scientist** Athens, Greece
Starlight
- Analyzed consumer behavior trends and designed descriptive and predictive modeling algorithms reducing the cost of customer acquisition by 20%.
- Set up and performed A/B tests to optimize UI changes increasing conversion rate by 13%.
- Streamlined data collection processes using scripting and automation tools, increasing data collection efficiency by 50%.

10/2014 – 03/2015 **Data Analyst** Athens, Greece
Relay
- Automated the process of analysis and visualization of business KPIs (e.g., ticket resolution time) using SQL and Python reducing manual reporting by 5 hours per week.
- Responded to ad hoc data requests from various departments, providing timely and accurate data analysis.

Education

2018 – 2021 **Doctor of Philosophy (Sustainability Science)** Tokyo, Japan
The University of Tokyo
- Worked on energy efficiency optimizations in smart grid area networks using a Markov decision process.
- Japanese government [Monbukagakusho: MEXT] scholarship recipient (awarded 120,000 USD equivalent).

2016 – 2018 **Master of Science (Sustainability Science)** Tokyo, Japan
The University of Tokyo

2010 – 2015 **Bachelor of Science (Economics)** Thessaly, Greece
University of Thessaly

Skills

Programming Languages: Python, R, SQL
Machine Learning Frameworks: SciPy, Scikit-learn, TensorFlow, PyTorch, pyMC, pgmpy
Cloud Computing: Azure, AWS, GCP
GenAI: RAG, Vector DBs, LangChain, LlamaIndex, Agentic Frameworks
Techniques: Neural Networks, Deep Learning, Reinforcement Learning, Probabilistic Graphical Modelling, Bayesian Networks, Markov Random Fields, MLOps/DataOps
Supporting Technologies: Git, Docker, SPSS, ArcGIS, Adobe Creative Suite
Publications: 7 as first author, 5 as contributing author. Areas including environmental science, energy & behavioral economics, statistics