KONSTANTINOS GEORGIOU

AI Research Engineer

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SUMMARY

- I have eight years of experience in AI, spanning academic research and practical industry solutions in computer vision, data engineering, LLMs, and classical machine learning.
- My work has been featured at conferences such as NeurIPS, and my contributions to open-source projects are available on GitHub, reflecting my commitment to developing practical AI solutions and sharing knowledge with the community.

EXPERIENCE

2024 – Now — Co-Founder & AI Lead

XPensAI – United Kingdom

Skills: Computer Vision · SaaS Development · Data Analytics · Cloud Infrastructure · API Integration

- Launched an AI-powered SaaS platform designed to streamline and automate expense reporting for small and medium-sized businesses.
- Lead the development and deployment of core AI algorithms that power automated expense tracking, real-time analytics, and receipt processing.
- Oversee the integration of advanced machine learning and computer vision solutions into the product, ensuring accuracy and scalability.

2021 – Now — PhD AI Researcher

University of Tennessee - US

Skills: Machine Learning · Computer Vision · Research · SQL · PyTorch · Statistical Modeling

- Conduct research on self-supervised framework that employs evolving masking strategies and teacher-guided distillation to learn robust visual representations.
- Enhanced research in masked image modeling by tailoring scale factors for remote sensing data, achieving an average accuracy improvement of 5% over the state-of-the-art across 4 datasets.
- Developed novel fine-tuning strategies for a self-supervised model, reducing training time by 32% and improving Macro F1 scores by 5.4% for the client's phase detection pipeline.
- Pioneered a contrastive learning model that improved state-of-the-art pixel-based semantic segmentation accuracy by 5.9%.
- Implemented a Koopman-based method for transient event detection, improving the average temporal error by 21.5 days.

2019 – 2021 — Associate Data Engineer

Performance Technologies S.A - Greece

Skills: Python · Data Engineering · Software Engineering · Machine Learning · Apache Spark · SQL · TensorFlow · Team Leadership

- Led the rapid completion of a critical terabyte-scale data replication project for Greece's leading telecommunications provider, reducing replication time from days to minutes and ensuring real-time views for ETL and analytics.
- Spearheaded the development of a machine learning model to predict order fulfillment times, which, following a comprehensive analysis of business operations and consultation with clients, resulted in a 34% reduction over previous baseline.
- Managed the design and implementation of a SIP call quality benchmarking service, successfully deployed across vital public institutions, facilitating improved service monitoring and enabling the Greek government to credit service providers.

2018 – 2019 — Associate Researcher

University of Patras - Greece

Skills: Python · Community Detection · Algorithm Design · Machine Learning · Apache Spark · SQL · Research

- Conducted intensive machine learning research, specializing in graph theory and network analysis.
- Reduced the execution time of the Girvan-Newman community detection algorithm by 84%, creating the first scalable solution while maintaining high accuracy and securing publication in the Algorithms journal.

2017 - 2018 — Junior Software Engineer

Global Voices Ltd - UK

Skills: Python · Software Engineering · Operating systems · SQL

- Played a pivotal role in developing and maintaining the company's proprietary content management system, significantly reducing bugs, implementing new features, overseeing code reviews, improving system functionality and user experience.
- Optimized the company's continuous integration and deployment pipelines, enhancing the efficiency and reliability of product releases, resulting in a 50% reduction in rollbacks and ensuring a streamlined development cycle.

EDUCATION

2025 — PhD in Data Science & Engineering

University of Tennessee

- Received Fellowship Award from the University of Tennessee Graduate School and Tickle College of Engineering, which recognizes academic excellence and research potential.
- Led innovative research in LLM security, uncovering crucial ground rules for ensuring secure code generation (to be published).
- Mastered the intricacies of ML by designing and implementing foundational models, including CNNs and RL agents, and delving into advanced statistical concepts such as Bayesian formulation and hidden Markov models, setting a strong base for innovative solutions in the field.

2019 — Integrated Master's in Computer Science & Engineering

University of Patras

- Developed an innovative distributed algorithm for community prediction in social graphs, achieving significant improvements in scalability and accuracy.

PUBLICATIONS

- *Improving Masked Image Modeling with Adaptive Masking and CLIP Distillation.* - ICML 2025 (Under Review)
- *Advancing Multi-scale Remote Sensing Analysis through Self-Supervised Learning Fine-tuning Strategies.* - IEEE IGARSS 2024
- *Koopman-based Transition Detection in Satellite Imagery.* - IEEE IGARSS 2024
- *Occasionally Secure: A Comparative Analysis of Code Generation Assistants.* - Arxiv 2024
- *Cross-Scale MAE: A Tale of Multi-scale Exploitation in Remote Sensing.* – NeurIPS 2023
- *Semantic Segmentation in Aerial Imagery using Multi-level Contrastive Learning with Local Consistency.* – WACV 2023
- *A Distributed Hybrid Community Detection Methodology for Social Networks.* – Algorithms 2019