

Machine learning generalist with 10+ years of experience in predictive (supervised and unsupervised) modeling, recommender systems, personalization, deep learning, reinforcement learning, NLP, anomaly detection, causal inference, and A/B testing. Experience with Transformers and LLM fine-tuning for supervised learning. Deployed several end-to-end customer and internal-facing machine learning solutions. Tech lead working with diverse cross-functional stakeholders and mentoring several junior data and machine learning scientists. Publications in top applied machine learning science outlets (KDD, WWW, WSDM, Management Science, ISR, POMS, MISQ, Plos One).

2024 - Current *Staff (L7) Applied Scientist* at **Thumbtack**

- ◇ Machine learning
 - (WIP) Working on building new personalization systems for home-care experience (Python–Scikit-learn)

2022 - 2024 *Staff (IC6) Applied Scientist Tech Lead* at **Meta** (*Ads Infra and Ranking*)

- ◇ Machine learning
 - Designed and deployed an end-to-end machine learning framework (supervised learning, unsupervised learning, anomaly detection) for predicting launch risk. By accelerating the launch of low-risk Ad models while flagging risky models for additional review, this framework has **generated \$94M in 2023H2**. (Python–Scikit-learn)
 - Fine-tuned (sampling adjustments, explained and measured counterfactual impact) a system that rejects model snapshots that are not within certain performance boundaries. Precision improvements prevented **monthly losses of ~ \$10M**. (Python, SQL)
 - Designed and deployed an end-to-end ranking framework—bootstrapping, probabilistic *language models*, and ranking models—to personalize the app experience for billions of users. (Python, R, Dataswarm–PyTorch)
 - Created an end-to-end machine learning predictive framework (PCA, regression analysis) for outlier app experience detection and monitoring. (Python, R, Dataswarm, Unidash–Scikit-learn)
 - Established end-to-end pipelines for analyzing observational data (regression analysis, fixed effects, propensity score matching) to robustly measure wins and provide trade-off analysis that informs VP-level decision-making. (Python, R, SQL, Dataswarm, Unidash–Scikit-learn)
- ◇ Leading, Mentoring, and Cross-Functional Collaboration
 - Designed a framework for understanding and measuring the impact of 25+ reliability systems (e.g., systems that stress-test and monitor ML models, feature serving, calibration, A/B testing, signal growth, and interpretability) within Meta’s Ads ML infra. The framework provides input to ROI calculations and guides project prioritization and headcount investment; it is projected to generate ~ **\$400M**. (Metrics, Strategic alignment with 20+ XFNs–statsmodels)
 - Tech-led and mentored junior colleagues by (1) providing weekly guidance and actionable feedback on their work, (2) scoping new opportunities for them, and (3) helping them roadmap their work.
 - Organized and led several org-wide study groups on recommender systems, Ad auctions, and experimentation.

2015 - 2022 *Research Professor of Applied Machine Learning* at **Boston College**

- ◇ Machine learning
 - Designed deep *reinforcement learning* frameworks (DQN, Dueling DQN, Double DQN, NLP) to provide career path recommendations that could result in up to a 6% increase in market revenue and a 22% increase in worker wages. (Python, R, Keras, PyTorch, published paper)
 - Designed *sequence-aware recommender systems* (HMM, LSTM) that match workers with potential employers; predictive performance (better quality matches) up to 40% better than state-of-the-art baselines. (Python, R, SQL, Keras, published paper)
 - Proposed machine learning frameworks that predict user engagement; feature-engineered new engagement metrics that increase predictive performance by up to 40%. (Python, R, SQL, Keras, published paper)
 - Designed dynamic expertise assessment systems (HMM, W2V, NLP) that yielded 20%–60% better outcomes than state-of-the-art baselines. (Python, R, SQL, Keras, published paper)

- Explained (panel data, instrumental variables, W2V, NLP) the trade-offs of skillset diversification. (Stata, Python, R, SQL, published paper)
- Explained (panel data, matching, topic modeling, NLP) biases that affect the reputation systems of online platforms. (Stata, Python, R, SQL, published paper)
- Explained (natural experiment, difference-in-differences, panel data, subsample analysis) the effect of purchase verification on a market's reputation system. (Python, R, Stata, published paper)
- ◇ Leading, teaching, and mentoring
 - Organized and ran several international conferences and workshops. Designed programming, machine learning, and database classes. Negotiated for hundreds of students to get free access to R Studio Cloud.
 - Taught core programming, machine learning, and database classes for undergraduate and graduate students. Repeatedly awarded for influential teaching.
 - Mentored 10+ students by supervising undergraduate and graduate theses and providing career advice.

2015 *Machine Learning Scientist* at **Upwork**

- ◇ Prototyped, deployed, and fine-tuned (feature engineering) the platform's first employer-worker matching algorithm, which led to a 4% increase in revenue and an 8% increase in outcomes. (Java, SQL, published paper)

Prior to 2015: *Research Scientist* (intern) at **Microsoft Research**, *Machine Learning Scientist (intern)* at **Upwork**, and *Software Engineer* at the **National Technical University of Athens**.

TOPICS AND METHODOLOGIES

- ◇ Predictive modeling, supervised and unsupervised learning, feature engineering, recommender systems, reinforcement learning, deep learning, neural networks, NLP, time-series forecasting, anomaly detection
- ◇ A/B testing, difference-in-differences, panel data, instrumental variables, Heckman selection models, propensity score matching, parametric and non-parametric survival analysis

PROGRAMMING LANGUAGES AND TOOLS

- ◇ Python (Pandas, Numpy, Scikit-learn, Keras, PyTorch, Transformers (Hugging Face), Statsmodels), R, SQL, Stata, Shell Scripting (prior to 2016: Java, C#, C++, C).
 - ◇ Dataswarm (Airflow equivalent), Presto, Hive, Manifold (HDFS equivalent), MySQL, Unidash, Deltoid3, FBlearner, MongoDB, portable batch system, Hadoop, MapReduce. Meta internal devservers; AWS, Sagemaker Studio for personal projects.
 - ◇ Jupyter, Tableau, VSCode, Rstudio, PyCharm, Vim.
-

EDUCATION

- ◇ **New York University**. *PhD* in Applied Machine Learning & Causal Inference (Information Systems)
 - ◇ University of California Riverside. MS in Computer Science
 - ◇ National Technical University of Athens. BS in Computer Engineering (5-year program)
-

SELECTED HONORS AND AWARDS

- ◇ INFORMS ISS Gordon B. Davis **Young Scholar Award** and ISS Nunamaker-Chen **Dissertation Award**
 - ◇ INFORMS Data Mining **Best Paper Award**
 - ◇ Represented Cyprus in the **International Physics Olympiad**
 - ◇ Represented Cyprus in the **International Biology Olympiad**
 - ◇ Several awards and honorary mentions in **Annual Mathematics Cyprus Olympiads**
-

INCOMPLETE SELECTION OF SOLO APPLIED MACHINE LEARNING PUBLICATIONS – (GOOGLE SCHOLAR PROFILE.)

- ◇ **Kokkodis Marios.** 2022. Adjusting Skillset Cohesion in Online Labor Markets: Reputation Gains and Opportunity Losses. *Information Systems Research*. (link to paper)
- ◇ **Kokkodis Marios.** 2021. Dynamic, Multi-dimensional, and Skillset-specific Reputation Systems for Online Work. *Information Systems Research*. (link to paper)
- ◇ **Kokkodis Marios.** 2019. Reputation Deflation Through Dynamic Expertise Assessment in Online Labor Markets. ACM World Wide Web Conference (*WWW*). (link to paper)
- ◇ **Kokkodis Marios.** 2018. Dynamic Recommendations for Sequential Hiring Decisions in Online Labor Markets. ACM International Conference on Knowledge Discovery and Data Mining (*KDD*). (link to paper)