

Alexander Radovich

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EDUCATION

Colgate University

Bachelor of Arts, Double Major: Applied Mathematics and Computer Science

GPA: 3.8/4.00 | Dean's Award for Academic Excellence with Distinction (All 4 Semesters)

Relevant Coursework: Graph Theory, Combinatorics, Data Structures & Algorithms, Linear Algebra, Computational Mathematics, Real Analysis, Numerical Analysis, Stochastic Calculus (upcoming)

Hamilton, NY

Expected: May 2027

EXPERIENCE

Machine Learning Research Intern

University of Maryland – Dr. Ming Lin

May 2026 - Present

College Park, MD

- Conducting research in machine learning for autonomous driving under the mentorship of Dr. Ming Lin.

Machine Learning Engineering Intern

DMEA

Jun. 2025 – Aug. 2025

Montrose, CO

- Engineered end-to-end Python neural network models ($R^2 = 0.98$) via scikit-learn to forecast revenue, enabling business-critical financial planning and reducing integration time for non-technical teams through modularized logic.
- Automated preprocessing for large-scale datasets (50+ features, 100k+ rows) via pipelines with one-hot encoding, Yeo-Johnson normalization, and data validation, cutting manual workflow overhead through reusable Python utilities.
- Delivered all milestones ahead of schedule and secured a return internship offer for technical excellence and initiative.

PROJECTS

Regime-Conditioned KAN Trading Strategy | Python, PyTorch, HMM, KAN, NumPy

Aug. 2025 – Present

- Detected market regimes with an unsupervised Hidden Markov Model on SPY, QQQ, GLD, and TLT; routed each regime to a specialist Kolmogorov-Arnold Network (KAN) forecaster trained only on structurally similar days.
- Achieved 0.38 out-of-sample Sharpe over a 15-year walk-forward backtest (2010–2024) with zero data leakage; identified and corrected an early leakage error that produced an inflated 6.28 Sharpe, ensuring honest methodology.
- Leveraged KAN spline plots for direct model interpretability, surfacing cross-asset regime signals invisible to single-model approaches; based on KASPER framework (arXiv:2507.18983).

PicGate | Full-Stack Web Application | picgate.app

2025 – Present

- Designed and deployed a live production web application serving real users, handling end-to-end development from frontend UI to backend infrastructure.
- Managed deployment pipeline and iterative feature releases based on user feedback, maintaining production uptime and reliability.

Colgate University Event Calendar | Next.js, PostgreSQL, Supabase, Java, Google Calendar API

Jan. 2025 – Mar. 2025

- Developed a full-stack campus event discovery platform integrating Google Calendar APIs to centralize 200+ events per semester.
- Implemented role-based authentication with Supabase for secure real-time event management, reducing posting errors by 40%.
- Collaborated within a five-member Agile team on a two-week release cycle, continuously refining usability based on student feedback.

ML Diagnostic Prediction System | Python, NumPy, Scikit-Learn

Jul. 2024 – Aug. 2024

- Designed and implemented a binary classification system to predict medical diagnoses from patient data.
- Built linear and logistic regression from first principles, independently implementing cost functions, gradient descent, and hyperparameter tuning without external ML libraries.

TECHNICAL SKILLS

Languages: Python (5 yrs), Java (3 yrs), C, JavaScript, HTML/CSS, MATLAB, $\LaTeX$

ML / Data: PyTorch, scikit-learn, NumPy, XGBoost, Pandas, Matplotlib, Jupyter, Anaconda

Quant / Math: Hidden Markov Models, KAN, Walk-forward Validation, Time Series, Linear Algebra, Stochastic Calculus

Dev Tools: Git/GitHub, React, Next.js, FastAPI, PostgreSQL, Supabase, MongoDB, Firebase, Linux, Figma, Scrum

Intermediate: C++, Assembly, GDScript, Godot, Unity

CERTIFICATIONS

Supervised Machine Learning: Regression and Classification

Jul. 2024 – Aug. 2024

Stanford University Online / DeepLearning.AI