

Tyler King

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education

Cornell University, Ithaca, NY
B.S. in Computer Science
GPA: 4.09/4.30

Aug 2021 – May 2025

coursework

** = graduate
coursework

CS 4820: Algorithms CS 4780: Machine Learning CS 6756: Robot Learning**
CS 6850: Information Networks** CS 2800: Discrete Math ECE 6210: Linear Systems**
CS 2110: OOP/Data Structures ENGRD 2700: Probability/Stats CS 6662: Comp. Imaging**

experience

Amazon Web Services, Santa Clara, CA

SDE Intern (ML)

May 2024 – present

- Implemented ML architectures for data prelabeling; accelerated human image annotations by 20-30%
- Prototyped multi-modal VLMs and segmentation-based algorithms for annotation model backend
- Added multi-threaded support and retry logic for model invocations to accelerate runtime 10x
- Authored design doc that reduced implementation time by 25% via comprehensive project specs

Turion Space, Irvine, CA

Machine Learning Engineer Intern

January 2024 – May 2024

- Spearheaded space debris detection via on-satellite imaging using bit quantization & model compression, reducing memory overhead by 50x; submitted as part of a \$400,000 Air Force grant
- Generated, processed, and cleaned 800 GB of synthetic satellite data to reduce model error by 88%
- Implemented end-to-end AWS pipeline for satellite deblurring; accelerated data processing 12-fold

ExxonMobil, Remote

Research Intern

March 2022 – December 2023

- Leveraged non-classical computing for 100k+ node vehicle routing problems with >99.995% accuracy
- Optimized code from native Python to Pytorch for a 15x speedup while and end-to-end GPU support
- Work led to a 1-year grant on large-scale combinatorial optimization via unconventional computing

NTT Research, Ithaca, NY

Research Intern

May 2023 – September 2023

- Trained coupled oscillators networks for image classification; obtained 99.4%+ accuracy on MNIST benchmarks for non-classical ML approaches
- Developed novel pruning method for neural network regularization; reduced wiring costs 100-fold
- Deployed models on cloud with WandB for hyperparameter tuning; reduced error rate by 75%

projects

Coherent Ising Machine Optimizer

July 2022 – November 2022


- Helped develop [cim-optimizer](#) as a part of a ten million dollar NSF grant #1918549
- Integrated Bayesian optimization Hyperband and random hyperparameter optimization suite for three variants of the coherent Ising machine to improve model error rates 3-fold
- Confirmed accuracy of external field coherent Ising machine by implemented dynamics from original amplitude heterogeneity correction paper in PyTorch and analyzing runtime and performance
- Wrote example usages of cim-optimizer in Jupyter Notebooks and integrated full documentation; package received 1,000+ downloads per month

AugNorm: Augmented Batch Normalization

March 2021 – May 2024

- Developed a new normalization scheme in deep neural networks via a generalized geometric median
- Outperformed state-of-the-art normalization approaches by 3-4% on domain adaptation tasks
- Generalized to images and language model normalization schemes, improving test accuracy by 1-5%

publications

Experimental Method for Studying Optimal Human Decisions 

(HCI 2022)

Nikolos Gurney, Tyler King, and John H. Miller

Generalizing Minimum Path Star Topology Algorithms 

(arXiv 2021)

Tyler King and Michael Soltys

languages & technologies

Python, Julia, Java, R, C, MATLAB

PyTorch, Tensorflow, Keras, WandB, AWS, Git/GitHub, Jupyter, Conda, Sklearn, Pandas, NumPy, Matplotlib, Seaborn, Networkx, Qiskit, Azure, AWS, Sphinx, Jira, Excel, Linux, L^AT_EX