

KEVIN REN

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EDUCATION

Cornell University

Ph.D. in Machine Learning

- Advisor: Nikhil Garg
- Research Interests: AI for Social Good, Decision-Making, LLM Reasoning

August 2025 -
New York, NY

Carnegie Mellon University

Bachelor of Science in Statistics and Machine Learning, Minor in Computer Science

- GPA: 4.0/4.0
- *Relevant Coursework:* Intermediate Deep Learning, Introduction to Machine Learning (PhD), Advanced Methods for Data Analysis, Parallel and Sequential Data Structures and Algorithms, Computer Systems
- *Extracurricular Involvement:* Sustainable Earth (Treasurer), Asian Students Association (Secretary)

May 2025
Pittsburgh, PA

RESEARCH / TEACHING EXPERIENCE

Yale University

Advised by Prof. Ofir Lindenbaum, Prof. Yuval Kluger

- Researched feature selection methods for hypernetworks, implementing sparse gating network in the Mothernet hypernetwork architecture.

June 2025, August 2025
New Haven, CT

Carnegie Mellon Machine Learning Department, Lab for AI and Social Impact

Advised by Prof. Bryan Wilder, Prof. Zhiwei Steven Wu

- Researched methods inspired by decision-focused learning for evaluating worst-case distribution shifts in resource allocation settings, given a predictive model, set of individuals, and downstream loss function.
- Also investigated ability of Large Language Models (LLMs) to forecast their own performance on tabular data classification tasks, prior to observing ground truth labels.

May 2023 - Current
Pittsburgh, PA

Carnegie Mellon Robotics Institute, Search-Based Planning Laboratory

Advised by Prof. Maxim Likhachev

- Studied Graph Neural Networks (GNNs) for the Multi-Agent Pathfinding (MAPF) problem.
- Integrated machine learning methods such as GNNs and convolutional networks with heuristic MAPF solvers (LaCAM, PIBT), outperforming SOTA machine learning solutions.

March 2023 - Current
Pittsburgh, PA

Carnegie Mellon School of Computer Science

Teaching Assistant, Introduction to Machine Learning (10-601, 701)

- Lead maintenance and feature development on course-hosted office hours queue web application.
- Host recitations and office hours, helping students with topics from linear regression to recommender systems.
- Collaborate with other TAs and course faculty to develop a new deep learning coding assignment, constructing RNNs from scratch in Pytorch.

January 2023 - Current
Pittsburgh, PA

Metro21: Smart Cities Institute

Intern

- Analyzed regional economic health using municipality employment, financial, and education metrics
- Led data pipelining and visualization process in Python/R to generate insights from regional poverty/transportation data, crucial to National Science Foundation proposal for regional economic stimulation funding

August 2022 - May 2023
Pittsburgh, PA

Carnegie Mellon University

Summer Undergraduate Research Fellow

- Formulated research questions modeling Pittsburgh light pollution as primary researcher
- Applied hot spot, TIN surface analysis in ArcGIS creating compelling geographic visualizations of skyglow
- Implemented ML models relating skyglow with demographic data after aggregating census datasets

May 2022 - August 2022
Pittsburgh, PA

PEER-REVIEWED PUBLICATIONS

- Veerapaneni, R., Jakobsson, A., **Ren, K.**, Kim, S., Li, J., Likhachev, M. “Work Smarter Not Harder: Simple Imitation Learning with CS-PIBT Outperforms Large Scale Imitation Learning for MAPF”, International Conference on Robotics and Automation (**ICRA**), 2025.
- Ren, K.**, Byun, Y., Wilder, B. “Decision-Focused Evaluation of Worst-Case Distribution Shift”, Conference on Uncertainty in Artificial Intelligence (**UAI**), 2024.
- Veerapaneni, R., Wang, Q., **Ren, K.**, Jakobsson, A., Li J., Likhachev, M., ”Improving Learnt Local MAPF Policies with Heuristic Search”, International Conference on Automated Planning and Scheduling (**ICAPS**), 2024.

INDUSTRY EXPERIENCE

TikTok

May 2024 - November 2024

Machine Learning Engineer Intern

San Jose, CA

- Develop pipeline for fine-tuning and evaluating LLMs for time series forecasting, combating overfitting with hyperparameter tuning and data augmentation techniques, achieving 20% higher accuracy.
- Integrate new components into advertisement inventory system by creating a new SQL table and updating downstream dependencies, after presenting data analysis of necessity for more detailed forecasting techniques to 20+ person development group, reducing percent error by 40%.
- Research deep learning (i.e., LLMs) for time series forecasting, reading 15+ papers to create a literature review, and using compiled information to choose models to use in production.
- Pushed 2 new neural-network-based forecasters to production, contributing to ensemble model for time series forecasting.
- Researched new metrics for forecast evaluation, taking into consideration downstream evaluation of forecasts to develop business-focused evaluation metrics that replaced outdated metrics.
- Wrote and maintained dashboard keeping track of forecast metrics over time per model.

Fifth Third Bank

May 2023 - August 2023

Software Engineer Intern, Secure Development Team

Cincinnati, OH

- Developed client-facing NodeJS, AWS-hosted microservice to onboard internal apps to encryption service.
- Configured and wrote Java (Spring Boot) tokenizer API to give clients example use cases of tokenization.

SKILLS / INTERESTS

Theoretical: Distribution Shift, Robustness, Deep Learning, Time Series Forecasting, Multi-Agent Pathfinding

Software: Python, C, C++, SQL, JavaScript (React, NodeJS), Java (Spring Boot, Gradle), Rust, R, Bash, Excel

Libraries: PyTorch, NumPy, Pandas, Matplotlib, PySpark, SciPy, SciKit-learn, Seaborn, SciPy

Technologies: AWS, Git, VSCode, Splunk, Jenkins, Docker, Terraform, HashiCorp Vault, Linux, PowerShell

AWARDS

- Phi Beta Kappa, Spring 2025
- CMU Senior Leadership Recognition, Spring 2025
- Dietrich College Dean’s List, High Honors (Spring/Fall 2021/2022/2023, Spring 2024)
- 1st Place Coolest Graphs (CMU Statistics Department for project: Manrattan - A Look into NYC’s Rats, link), December 2022