Akshay Pandit

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Education

University of Illinois at Urbana-Champaign May 2025 (Exp.)
Candidate for PhD in Civil Engineering GPA: 3.7/4.0
Master of Science in Applied Statistics (2023) GPA: 3.7/4.0
Master of Science in Civil Engineering (2020) GPA: 3.8/4.0

Technical Experience

Algorithmic Trading/Machine Learning

FinTech Lab, UIUC

- Spearheaded the cryptocurrencies market-making strategies for a semester long algorithmic project
- Implemented Ichimoku, Moving Average, and Volume-weighted moving average market making models for cash equities and cryptocurrencies, achieving **positive sharpe ratio** for cryptocurrencies
- Built LSTM models and custom loss functions for integrating price prediction in market-making strategies
- Developed downloader and parser scripts to obtain data from crypto-exchanges and parsing it for backtester

Corteva Agriscience Champaign, IL
Deep Learning Intern, Bioinformatics Team May – August 2022

- Spearheaded the project by researching RNN and transformer-based NLP models for genome classification
- Customized state-of-the-art **BERT** based classification model (**BERTax**) achieving mean accuracy of 92%
- Performed benchmarking against state-of-the-art sequencing model (Kraken2) achieving 95% consistency

Caterpillar Inc. Remote
Data Scientist Intern, CatDigital May – Aug 2021

- Build a **supervised machine learning model** predicting change in asset ownership with 82% accuracy and 88% precision
- Handled an **imbalanced dataset** by implementing One-Sided Selection (OSS) under-sampling technique resulting in 1000% reduction in class skewness

Research Experience

University of Illinois, Urbana-Champaign Urbana, IL
Graduate Research Assistant, Konar Research Group Jan 2019 – Present

Correlational and Causal Analysis

- Managed and sorted data for 170 countries spanning 8 major crop categories showcasing 550% increase in agricultural trade
- Utilized novel econometrics techniques developing a **causal relationship** between trade and agricultural yield resulted in increased yield over time

Technical Skills

Languages: *Proficient:* Python, R, *Basic:* C, C++
ML Libraries: Tensorflow, PyTorch, Sckit-learn, Keras
Publications: Hydro-social metabolism: scaling of birth rate with regional water use, Nature (2018), Spatially detailed agricultural and food trade between China and the United States, Environmental Research Letters (2023)

Relevant Courses

Algorithmic Market Microstructure, High Frequency Trading, Machine Learning, Statistical Learning, Stochastic Processes, Random Processes, Time Series Analysis, Intro to Optimization, Applied Regression Design, Natural language Processing, Numerical Analysis, Intro to Data Mining, Sampling and Categorical Data