

Akshay Pandit

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Urbana, IL

217-721-8196

EDUCATION

University of Illinois at Urbana-Champaign

Candidate for PhD in Civil Engineering (Computational Science and Engineering)

GPA: 3.7 / 4.0

Urbana, IL

Aug. 2020 – May 2025 (Expected)

University of Illinois at Urbana-Champaign

Master of Science in Applied Statistics

GPA: 3.7 / 4.0

Urbana, IL

Sept 2022 – Dec 2023

TECHNICAL SKILLS & RELEVANT COURSES

Languages: Proficient: Python, R, Basic: C, C++, Bash **OS:** Linux

Certifications: Bloomberg Market Concepts Certification [Link](#)

Mathematics: Stochastic Processes (ECE 534), Intro to Optimization (ECE 490), Applied Regression Design (STAT 425), Numerical Analysis (CS 450), Sampling and Categorical Data (STAT 426)

Algorithmic Trading: Algorithmic Market Microstructure (FIN 556), High Frequency Trading (IE 421)

ML and Data Science: Machine Learning (CS 446), Statistical Learning (STAT 542), Pattern Recognition (ECE 544), Intro to Data Mining (CS 412)

PROFESSIONAL EXPERIENCE

Corteva Agriscience

Deep Learning Intern, Bioinformatics Team

Urbana, IL

May 2022 – Aug 2022

- Implemented BERT-based NLP model (BERTax) for genome classification to compare with existing sequence-based tools
- Processed 10,000+ genome assemblies across different taxonomic levels to test BERTax over different fragment classes
- Performed benchmarking against top sequencing model (Kraken2) achieving 95% consistency in prediction compared to 93% for Kraken2 suggesting BERTax can replace sequence-based tools

Caterpillar Inc.

Data Scientist Intern, CatDigital

Remote

May 2021 – Aug 2021

- Built a Random Forest supervised ML model for an ensemble of 10 models that predicts change in asset ownership
- Analyzed 100K+ examples with 100+ features and applied under-sampling techniques reducing class skewness by 1000%
- Integrated the model into an ensemble framework, boosting accuracy from 75% to 82% and precision from 79% to 88%, enhancing user recommendations

TRADING PROJECTS

Automated trading bot on Solana blockchain

Guide: [Prof. David Lariviere](#)

Urbana, IL

Jan 2024 – May 2024

- Created a trading bot for meme coins on Solana to track new token pairs and trade based on price and volume trends
- Developed scripts to track new pairs, find buy signals, interact with Solana AMM for swaps, and build trading logic for sell signals
- Backtested strategy for 100+ meme coins with net profit, but live trading faced net losses due to public node latency

Backtesting HFT market-making strategies

Guide: [Prof. David Lariviere](#)

Urbana, IL

Aug 2023 – Dec 2023

- Worked in a team of 4 to backtest high-frequency trading (HFT) market-making strategies, utilizing Level 2/Level 3 data for cash equities and cryptocurrencies
- Wrote downloader and parser scripts to obtain data from 3+ crypto-exchanges and parse it for Strategy Studio back tester
- Backtested Ichimoku, Moving Average, and Volume-weighted moving average strategies over 1 month period producing net losses ([Gitlab repo](#))

RESEARCH EXPERIENCE

University of Illinois, Urbana-Champaign
Graduate Research Assistant, Konar Research Group

Urbana, IL
Jan 2019 – Present

Dissertation: Impact of Trade on Agricultural Productivity

Guide: *Dr. Megan Konar*

Chapter 1: Examine the correlation between trade and agricultural productivity (*Under Review*)

- Applied weighting and decomposition analyses allowing for a nuanced understanding of how trade impacts productivity
- Analyzed and cleaned 60+ years of data from the FAO for 245 countries across 100+ food commodities
- Showed that trade increases global agricultural yields over time, with high-yielding countries having higher export shares than production shares

Chapter 2: Determine the causal impact of global trade on agricultural variables (*Under Review*)

- Researched and applied econometric methods to investigate the causal relationship between trade, agricultural variables, and groundwater depletion
- Built models using 2SLS Instrumental Variables (IV), PPML IV, and Iterative 2SLS IV approaches to address reverse causality and endogeneity concerns
- Concluded that increased trade causally boosts global agricultural yields and reduces groundwater depletion, supporting the productivity of globalization over self-sufficiency

Chapter 3: Estimate the spatially resolved bilateral trade links in the US-China agri-food system (*Published*)

- Investigated spatial connections in US-China agri-food trade, estimating trade between Chinese provinces and U.S. states/counties.
- Processed 3 national datasets for 2017 and created multiple crosswalks for interoperability.
- Developed a downscaling scheme to integrate datasets and estimated 15,469 and 713,806 link-level connections at state-province and county-province resolutions.
- Found that top 5 link-level connections and transit hubs account for over 70% bilateral agricultural trade, making the network vulnerable to supply chain shocks and resource depletion.

Chapter 4: Ascertain the causal impact of China joining the WTO on US agriculture (*Under Progress*)

PUBLICATIONS AND PRESENTATIONS

- **[Publication]** Spatially detailed agricultural and food trade between China and the United States, **A. Pandit**, D. B. Karakoc, M. Konar. *Environmental Research Letters*, 2023 [Link](#)
- **[Publication]** Hydro-social metabolism: scaling of birth rate with regional water use, S. Pande, **A. Pandit**. *Palgrave Communications (Nature)*, 2018 [Link](#)
- **[Presentation]** High-resolution Mapping of US-China Bilateral Agricultural and Food Supply Chains, **A. Pandit**, D. B. Karakoc, M. Konar, *American Geophysical Union Conference*, 2022
- **[Presentation]** How does trade impact agricultural productivity?, **A. Pandit** *American Geophysical Union Conference*, 2021