

RISHAB TIRUPATHI

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Education

University of Illinois at Urbana-Champaign

Master of Science in Applied Mathematics, Algorithms and Optimization

Expected December 2025

Overall GPA: 3.79/4.00

Graduate Coursework: Statistical Learning, Computational Statistical Optimization, Algorithms and Models of Computation, Theory of Probability, Advanced Optimization, Numerical Analysis, Graph Theory, Partial Differential Equations

University of Illinois at Urbana-Champaign

Bachelor of Science in (Highest Distinction) Applied Mathematics, (Highest Distinction) Statistics

December 2023

Overall GPA: 3.81/4.00

Undergraduate Coursework: Linear Algebra, Statistics and Probability, Statistical Modelling, Time Series Analysis, Time Series Machine Learning, Numerical Methods, Stochastic Processes, Optimization

Experience

Freddie Mac

Incoming Graduate Quantitative Risk Management Intern

McLean, VA

May 2025

University of Illinois at Urbana-Champaign

Graduate Researcher

Champaign, IL

August 2024 – Present

- Conducting research in portfolio optimization with transaction costs

Mathematics Graduate Teaching Assistant

August 2024 – Present

- Assisting in teaching Calculus to over 60 undergraduate students, enhancing their understanding of fundamentals and computational procedures
- Conducting weekly discussion sessions, clarifying complex concepts and facilitating problem-solving activities
- Grading assignments and exams biweekly providing constructive feedback to improve student performance
- Holding weekly office hours to offer individualized academic support and mentorship

AGCO Corporation

Data Analyst Intern

Champaign, IL

May 2024 – August 2024

- Automated manual code generation and data cleansing processing through VBA reducing reporting time by 98%
- Implemented automated code generating processes uniquely mapping over 3500 entries to alphanumeric codes
- Conducted research on product inventory to determine redundant information and refine product offerings

FrostDefense Envirotech

Machine Learning Intern

Champaign, IL

January 2024 – May 2024

- Performed data visualization and statistical analysis on temperature data of over 35,000 data points from 1924 to 2023, focusing on frost risk assessment and trend identification through Python
- Implemented machine learning and deep learning algorithms such as Random Forest and LSTM, to forecast temperature patterns and frost occurrence through time series data with 94% accuracy
- Developed an automation process in Python of downloading and aggregating data from multiple CSV files into a single dataset

Chicago Blackhawks

Analytics Intern, Business Strategy and Analytics Group

Chicago, IL

June 2023 - August 2023

- Implemented and designed SQL and DBT data models of over 1 million ticketing records to support ticket operation analyses and reporting
- Developed 4 Tableau dashboards for the ticketing department to make data-driven decisions on ticket pricing and sales
- Formulated hypotheses, performed tests, synthesized insights, and effectively delivered recommendations through narratives and presentations to senior leadership

Projects

World Health Organization Life Expectancy Predictor

- Developed classification and regression models on a World Health Organization dataset to predict Life Expectancy, focusing on Logistic Regression and Random Forest in Python and R
- Conducted correlation analysis to identify key variables, achieving a classification accuracy of 94.4%
- Improved model performance by trimming predictors, scaling inputs, and utilizing Random Forest models, resulting 98.3% accuracy

Monopoly Board Game Simulator

- Created a Monopoly board game simulator through Python and Matplotlib to determine optimal playing strategies under different scenarios
- Implemented Python data visualizations to conduct data analysis on property value and return on investment based on the simulations
- Determined the ideal properties to buy based on a variable number of players through Monte Carlo simulations

Skills

Programming Languages: Git, Python, R, SQL, Visual Basic

Software: DBT, Microsoft Excel, Snowflake, Tableau (BI)

Python Libraries: Keras, Matplotlib, NumPy, pandas, scikit-learn, SciPy, seaborn, statsmodels, TensorFlow

R Libraries: dplyr, ggplot2, tidyverse, tsa