**Rishab Tirupathi**

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**Education**

**University of Illinois at Urbana-Champaign**  *Expected December 2025*

*Master of Science in Applied Mathematics, Algorithms and Optimization Overall GPA: 3.91/4.00*

**Graduate Coursework:** Statistical Learning, Computational Statistical Optimization, Algorithms and Models of Computation, Theory of Probability, Graph Theory, Combinatorial Mathematics, Optimization in Finance

**University of Illinois at Urbana-Champaign**  *December 2023*

*Bachelor of Science in (Highest Distinction) Applied Mathematics, (Highest Distinction) Statistics Overall GPA: 3.81/4.00* Dean’s List, Men’s Rugby, Psi Eta Mu Information Sciences Professional Fraternity

**Undergraduate Coursework:** Algorithms and Computing, Linear Algebra, Statistics and Probability, Statistical Modelling, Statistical Analysis, Time Series Analysis, Time Series Machine Learning, Numerical Methods, Stochastic Processes, Linear Programming, Non-Linear Programming, Differential Equations, Combinatorics, Inter Microeconomic Theory, Applied Random Processes

**Experience**

**University of Illinois at Urbana-Champaign Mathematics Department Champaign, IL**

*Incoming Mathematics Graduate Teaching Assistant August 2024*

**AGCO Corporation Champaign, IL**

*Data Analyst Intern**May 2024 – Present*

* Debugging and analyzing VBA code to streamline product code generation processes, and reducing reporting time by 93%
* Implementing HuggingFace machine learning modules for text translation of over 50 languages to English

**FrostDefense Envirotech Champaign, IL**

*Machine Learning Intern**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 Chicago, IL**

*Analytics Intern, Business Strategy and Analytics Group 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
* Formulated hypotheses, performed tests, synthesized insights, and effectively delivered recommendations through narratives and presentations to senior leadership
* Created Python machine learning models to accurately predict future ticket sales and revenue for the upcoming NHL seasons
* Developed 4 Tableau dashboards for the ticketing department to make data-driven decisions on ticket pricing and sales

**Singapore Armed Forces Singapore**

*Platoon Commander, 30 SCE June 2018 - July 2020*

* Commissioned as a Lieutenant in the Singapore Army and led a platoon of 15 combat engineers in engineering tactics, techniques, and army fundamentals
* Engaged in various modules taught by experienced senior leadership on personnel management, leadership, and soldier fundamentals
* Obtained a Band-1 rating of 89% for the first-year army-wide evaluation, and received Battalion Commander’s Coin

**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 after 100 iterations of 1000 turn games, the ideal properties to buy based on a variable number of players

**Illinois Geometry Lab Champaign, IL**

*Undergraduate Researcher August 2022 - December 2022*

* Conducted research into Permutations and Shallow Quantum Circuits by analyzing advanced quantum mechanics papers to determine tuning parameters, input configurations, and final measurements of a quantum circuit
* Presented weekly updates, findings, and insights to the head of the project

**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