

# Charles Troutman III

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## Education

### Washington University in St. Louis (WashU)

St. Louis, MO | Aug 2021 – May 2026

Bachelor of Arts in Mathematics, Minor in Computer Science

3.96/4.00 GPA (Cumulative) | 2024–2025 Gap Year

### Freiwald Scholar, NSF-Funded Program

Jan 2023 – Present

• Selected as 1 of 8 Mathematics/Statistics students for a faculty-mentored research program culminating in Honors Thesis

**Technical Skills:** SQL (Snowflake), Python (Pandas, NumPy, scikit-learn), DBT, PowerBI, Microsoft Azure, Excel

## Experience

### Data Engineering Co-Op – ARCO Construction Company

St. Louis, MO | Aug 2024 – Present

• Developing a Natural Language Query data search tool to enable fast, intuitive access to business insights

### Head Teaching Assistant, Recitation Lead – WashU

St. Louis, MO | Jan 2024 – Present

#### CSE 541T: Advanced Algorithms – Graduate Level

• Hold targeted pre-exam office hours, prepare solutions for assignments, and co-manage grading for 15 students

#### CSE 347: Analysis of Algorithms – Undergraduate Level

• Lead a weekly discussion session of 12 students, hold weekly office hours, and grade assignments for 160 students

### Trading Micro-Intern – Peak6 Capital Management

Chicago, IL | Aug 2024 – Aug 2024

• Pitched a successful trade in a week-long volatility trading program with in-depth lectures and shadowing sessions

### Data Science Intern – Fifth Third Bank

Cincinnati, OH | May 2024 – Aug 2024

- Filtered raw transactional dataset using SQL models in DBT, engineered features to capture customer spending patterns
- Automated hyperparameter tuning and selection of resampling technique for gradient boosting models on an imbalanced dataset. Increased model AUC by .007 to .95, saving the bank \$200,000 annually
- Applied k-medoids clustering to segment customers, providing actionable insights for targeted marketing strategies

### Actuarial Data Science Intern – Safety National

Greater St. Louis, MO | Jan 2023 – May 2023

- Optimized performance of a TF-IDF string-matching algorithm, reducing runtime from 48+ hours to 8 minutes, enabling client exposure assessment. Integrated results into Snowflake and co-presented a PowerBI report to executives
- Designed a 10,000+ Excel file data extraction strategy to aggregate investable reserves from indemnity payments

## Research & Projects

### Freiwald Scholars Researcher – WashU

St. Louis, MO | Jan 2023 – May 2023

• Researched High-Dimensional Probability, authored expository article, and delivered 4 presentations to academic peers

### Summer Researcher – Mathematical Staircase Inc.

Bryn Mawr, PA | Jun 2022 – Aug 2022

- Developed a Python program to generate random combinatorial graphs, directly enabling proof of 7 new results
- Presented original findings at the 2023 Joint Mathematics Meetings and [WashU Undergraduate Research Symposium](#)

### Partitioning Peck Posets – Algorithm Development

<https://github.com/Peck-Poset-SCDs>

- Developed a falsification-based preprocessing stage to combat erroneous selections of a randomized algorithm
- Collaborating with Dr. Brendan Juba on optimization approaches for an unsolved problem, potentially NP-complete

## Extracurriculars

### WashU Chess Club President, Collegiate Chess League (CCL) Coordinator

Aug 2023 – Present

- Orchestrated the SP24 WashU Rapid and Blitz Tournament, a \$1000, 100+ participant event, sponsored by STL Chess Club
- Led the A team to 3rd place in CCL Division 2/23, managed lower teams, and mentored the C team toward a Division Title

## Awards & Honors

Actuarial Exam FM/2 (Financial Mathematics)

Passed Jun 2021

Georgia Representative, Arnold Denker Tournament of High School Champions

Jun 2020

Georgia High School State Chess Champion, Top 20 State Ranking

Feb 2020

