917-678-9286
Somerville, MA
fsmuench@gmail.com

Sammy Muench

LinkedIn
Github

EDUCATION

Tufts University School of Engineering, Somerville, MA | B.S. Data Science | May 2025 | 3.91 GPA | Summa Cum Laude | Sole recipient of the Victor Prather Prize in Computer & Data Science for excellence in scientific research
Relevant Coursework: Machine Learning, Files & Databases, Bayesian Machine Learning, Algorithms, Data Structures, Linear Algebra, Probability, Statistics, Discrete Math, Issues American Public Policy

SKILLS

Programming Languages: Python, SQL, C++, R
Frameworks: PyTorch, TensorFlow, NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, BeautifulSoup, pyodbc
Tools & Software: Git, CI/CD, Linux, Excel, Power BI, Google Workspace, LLM APIs, LLM Prompting

PROFESSIONAL EXPERIENCE

Quantitative Analyst, Risk and Trading **August 2025 - Present**
Stonex Financial Ltd, Retail Branch New York, NY

- Planning, coding, and testing bespoke machine learning modules to automate hedging strategies,
- Refined and stress-tested existing risk models to account for market volatility, achieving a tenfold improvement in held-out mean squared error (MSE)
- Developed an end-to-end data pipeline (Python → SQL → Power BI) to automate detection and reporting of data integrity issues, providing daily alerts for missing or anomalous data

Research Assistant, Quantitative Spatiotemporal Modeling **Jan 2024 - July 2025**
[Github] [Manuscript] *Prof Michael Hughes' Lab* Medford, MA

- Developed codebase using PyTorch for predicting opioid overdoses using advanced machine learning techniques
- Discovered that yearly overdose predictions across census tracts offer the same utility as weekly predictions
- Identified overdose hotspots for potential policy interventions
- Optimized data storage in Python using compression techniques to maximize dataset size
- Tested, debugged, and fine-tuned neural network models at scale using CUDA GPUs
- Using the opioid overdose modeling framework, identified endangered bird locations at an 8% higher rate than off-the-shelf models
- Co-authored manuscript, presented at International Conference on Machine Learning 2025

Teaching Assistant **Spring 2024 & 2025**
Tufts University Medford, MA

- 2025: TA for Machine Learning (probability, linear algebra, statistics, regression, neural networks, tree-based methods)
- 2024: TA for Discrete Mathematics (combinatorics, graph theory, logic, counting, relations)

Mathematics Tutor **Sept 2021 - May 2025**
Freelance Remote

- Tutored students in subjects ranging from Algebra I to Pre-Calculus
- Taught test-taking strategies, problem-solving strategies, and how to learn new material

Quantitative Research Intern **May 2024 - Dec 2024**
StoneX Financial Ltd, Retail Branch New York, NY

- Automated ETL pipelines for sensitive financial data, processing 50GB/day via parallel Python workflows
- Discovered potential three-fold profit increases with new trading strategies on USD/JPY currency pair
- Created and maintained detailed documentation of models, simulations, and performance metrics
- Delivered clear visualizations and concise daily presentations in fast-paced business environment
- Invited to continue internship part-time during following college semester due to exceptional performance

Data Science Intern **May 2023 - August 2023**
Optima Sports Group Remote, USA

- Integrated college scouting reports and high school football award data from CSVs, PDFs, and hundreds of webpages into one cohesive dataset
- Discovered that basic high school football player covariates share little variance with their consensus scout rating, informing the explainability of such ratings

PROJECTS

Predicting NFL Rookie Year Outcomes using NLP and Ensemble Methods **Aug 2024 - Present**
Tufts University Data Science Capstone Medford, MA

- Aggregated NFL combine data, player scouting reports, depth charts, and supporting cast information into one cohesive dataset from numerous sources (PFF, NFL.com, Pro Football Reference) using a bespoke ETL pipeline
- Automated prompting of Gemini LLM API to classify NFL player traits in Python
- Discovered that supporting cast has no effect on rookie wide receiver performance
- Discovered latent relationships between distinct scouting metrics such as play recognition and leadership
- Discovered predictive signal between derived scouting metrics and rookie year performance
- Presented poster at Carnegie Mellon Sports Analytics Conference

Testing the Racial Boundaries: The SHSAT in NYC **Feb 2024 - Apr 2024**
Tufts University Public Policy Department Medford, MA

- Performed extensive research surrounding standardized high school testing policy in New York City (SHSAT)
- Compared alternatives to standardized testing and outlined policy history in written policy memo
- Facilitated discussions on systemic policy changes to improve equitable educational access

Comparing first and second order gradient descent using NBA rookie data **Mar 2023 - May 2023**
Tufts University Machine Learning Medford, MA

- Developed interfaces for comparing first and second order gradient descent using NumPy vectorized computations
- Demonstrated trade-offs in computational efficiency using first and second-order methods for logistic regression

VOLUNTEERING

Peer Therapist, Student Help Line **Mar 2023 - May 2025**
Tufts University Medford, MA

- Working overnight shifts anonymously speaking with Tufts students about mental health problems
- Administering risk assessments to callers in crisis
- Talking callers through relationship issues, existential crises, family issues, and more

Junior Firefighter **Jun 2019 - Mar 2020**
Hastings-on-Hudson Fire Department Hastings-on-Hudson, NY

- Simulated firefighter drills with professionals
- Organized and executed multiple fundraisers

ACTIVITIES & INTERESTS

Ultimate Frisbee, Long-Distance Running, Improv Comedy, Piano, Bass Guitar, Music, Meditation