

# Brandon Michaels

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## EDUCATION

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### Georgia Institute of Technology | Atlanta, GA

BS Computer Science, **GPA: 4.0 - May 2026** (Finishing in **3 years**)

MS Computer Science - Expected **May 2027**

## EXPERIENCE

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### Machine Learning Engineer Intern, TikTok | Summer 2026 | San Jose, CA

- Incoming MLE intern on the ML Search Platform

### Machine Learning Lead, Furnichanter AI - GT Data Science | Jan. 2024 - Present | Atlanta, GA

- Led development of scalable recommendation engine using matrix factorization and collaborative filtering algorithms to power furniture discovery for an Agentic Chatbot platform, serving as the core backend system for personalized user experiences.
- Architected and implemented item-based collaborative filtering model in Python, achieving **0.85 RMSE** on held-out user rating data through advanced feature engineering and hyperparameter optimization using scikit-learn.

### Software Engineer Intern, Bank of America | Summer 2025 | NYC, NY

- Automated pre-market equity lending risk checks for the Global Stock Lending desk using **Python**, **Selenium**, and **ansible** reducing start-of-day execution time by **30%** and increasing operational efficiency.
- Created an internal **Python library** to transform **XML** and **JSON** equity lending data into charts and trading dashboards, supporting faster data interpretation across Global Markets Prime Brokerage risk teams.

## RESEARCH & INDEPENDENT WORK

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### Machine Learning Researcher, GROWER Lab | Apr. 2024 – Present | Atlanta, GA

- Developed time-series models to quantify **volatility in power grid** resilience across 3 U.S. states, supporting joint research with Oak Ridge and Sandia Labs on identifying **high-risk infrastructure** zones from 5+ years of outage data.
- Executed **1,500+** **parameterized experiments** using grid search across statistical methods (threshold, peak detection, PELT), improving event duration estimates by **>50%** over baseline.
- Engineered an event-driven **AWS Lambda** pipeline to ingest **15-minute interval grid outage data from 3,000+ U.S. counties**, enabling fault ingestion for downstream resilience analytics and alerting

### Research Associate, DS@GT CLEF - LongEval | Nov. 2025 - Present | Atlanta, GA

- Building and evaluating a time-aware **RAG pipeline** for questions where “ground truth” changes over time, measuring answer correctness under evolving evidence and contradictions across short and long-term document collections.
- Stress-testing retrieval + generation with longitudinal ablations (retriever choice, chunking, reranking, citation strategy), and reporting what actually drives performance when the underlying **corpus drifts** month-to-month.

### Quant Researcher, GTSF Investments Committee | Jan. 2024 - Present | Atlanta, GA

- Designed ensemble **time-series models** for commodity prices (corn, crude oil, copper), combining SARIMA and XGBoost to study signal persistence across macroeconomic regimes to assist trading decisions in **\$2.7 million** portfolio.
- Applied **Fourier and Hilbert-Huang** transforms to isolate cyclical structure in non-stationary price series, improving preliminary backtest Sharpe from **0.58** to **0.94** while reducing max drawdown by  $\approx 42\%$ .

## TECHNICAL PROJECTS

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### Dental Guard | React, Python, PyTorch | Health Track Finalist @ Hacklytics 2024

- Trained a CNN to classify dental conditions from smartphone images, **achieving 82%** accuracy on held-out data under limited labeled samples.
- Analyzed failure cases across lighting, angle, and class imbalance, and optimized preprocessing to reduce **inference latency** by 18%.

## TECHNICAL SKILLS & AWARDS

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**Awards:** Top 3% IMC Prosperity 3 | 5th Place IMC Low-Latency Challenge | National Merit Scholar Finalist

**Languages:** Python, Java, C, C++, SQL, Assembly, JavaScript, HTML, CSS, JavaFX, ReactNative, YAML

**Frameworks/Libraries:** NumPy, Pandas, PyTorch, TensorFlow, SciKit-learn, MatPlotLib/Seaborn, Ansible, React

**Developer Tools:** Git/GitHub, Docker, Unix, Linux, Agile/Scrum, Jira, BitBucket, GitLab CI/CD, HuggingFace