

Zhuoran (Lucy) Sun

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EDUCATION

Carnegie Mellon University

Master of Computational Data Science (Analytics Track)

GPA: **4.04/4.0**; Courses: Machine Learning for Signal Processing, Machine Learning for Large Datasets, Cloud Computing

Skills: Azure, AWS, GCP, Databricks, Spark, MapReduce, Docker, Kubernetes, PyTorch, Vert.x

Pittsburgh, PA

Expected: Dec 2025

Emory University

Bachelor of Business Administration, Information Systems & Operations Management

Double Major: Mathematics and Computer Science Joint Major

GPA: **3.95/4.0** (High Distinction, ISOM Distinction Award, Beta Gamma Sigma)

Courses: Optimization, Numerical Analysis, Database Systems, Machine Learning, Data Mining

Atlanta, GA

May 2021

WORK EXPERIENCE

Truist Securities

Quantitative Research Analyst/Associate

Atlanta, GA

July 2021 – June 2024

Post-Trade Analysis and Reporting Pipeline

- Automated the daily profit and risk reporting process for credit trading desks with Python *Pandas, Numpy* packages
- Expanded the solution to cover all fixed-income and loan-trading businesses, reducing report generation time by 50% while ensuring uninterrupted reporting and high-quality data analytics to support senior management
- Enhanced query performance in the reporting process post-migration of *SQL server* to *Snowflake*, achieving a 15% reduction in execution time. Upgraded visualization experience from static images to interactive *Tableau* dashboards
- Built reconciliation processes of reporting systems and databases among traders, middle-office, and accounting teams

Trading Strategy and Trader Support

- Led a proof-of-concept analysis for an investment-grade bond trading strategy, utilizing statistical and time-series analysis, including *ARIMA, Regression, Dickey-Fuller tests*, on over 3+ years of request for quote data; delivered to traders as part of the electronic trading strategy development
- Built RUNZ, an event-driven bond price listener using *SpringBoot* to capture *Bloomberg* quote messages, enabling price change alerts and pre and post trading time-series analysis for high-yield bonds
- Took the initiative to perform *SQL query optimization* on the annual trading volume and balance sheet analysis for all trading businesses and reduced query generation time from 1 hour to 15 minutes for each trading desk

Team Support

- Developed and distributed *Python API* packages across trading and middle office teams to integrate with main pricing systems across all derivative trading businesses, ensuring stable connectivity with *ZMQ*, result formatting, and compliance with company-wide security updates, enabling easier pricing analytics for desk-support analysts
- Managed documentation and version controls and developed pipelines backing up all reporting processes with *GitLab*

PROJECTS

Twitter Recommendation with Cloud Solutions

Pittsburgh, PA (Jan. 2025 – May 2025)

- Designed an efficient data schema and performed a distributed ETL process with *Azure Databricks* using *Spark* in Scala, calculating the recommendation scores based on user interactions
- Deployed production-level micro-services with a Kubernetes cluster with Terraform, Docker, and Helm charts on *AWS ECS and AWS EKS*. Compared backend performance between *MySQL, AWS RDS MySQL, and AWS ElastiCache service*
- Created *CI/CD* deployment automations with GitHub Actions to interact with AWS clusters and databases
- Fine-tuned the clusters to achieve latency within 5ms over a 3-hour live test and ranked top 5 in the leaderboard

E-commerce Database Analysis, Emory University

Atlanta, GA (Aug. 2019 – July 2020)

- Analyzed 40M+ cart statuses on the largest Latin American e-commerce platform to improve database efficiency by applying *time-series analysis, random forest classification, LSTM, and DBSCAN outlier detection* using *SciPy and PyTorch*, achieving a 91% ROC for checked-out carts
- Paper accepted: [OLTP In Real Life: A Large-scale Study of Database Behavior in Modern Online Retail](#) at MASCOTS 2021

Sales System, The Emory Wheel

Atlanta, GA (Sept. 2017 – June 2020)

- Migrated sales data from Google Sheets to a *Django-based* online sales system with *PostgreSQL* database deployed on *Heroku*, enabling report generation, analytics, visualization, and commission calculations, saving the sales manager 50% of time on analytics and organization
- Regulated communication with 100+ clients, generated \$1000+ sales revenue each semester

Stream Chinese Musical Ensemble, Founder & Performer

Atlanta, GA (Jan. 2018 – May 2021)

- Founded a musical ensemble, recruited more than 10 people, performed Guzheng, managed rehearsals and recitals