

# Zachary Gillette

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*Data Developer at Octus, 2025 Vanderbilt Graduate*

## EDUCATION

**Vanderbilt University**, Nashville, TN

**August 2023 - May 2025**

B.A. Applied Mathematics, Computer Science

3.4/4.0 GPA; *Differential Equations, Probability and Statistics, Algorithms, Software Design, Data Visualization*

**Swarthmore College**, Swarthmore, PA

**August 2021 - May 2023 (transferred)**

Computer Science, Linguistics

3.6/4.0 GPA; *Linear Algebra, Discrete Math, Machine Learning, Artificial Intelligence, Discrete Mathematics*

**Belmont High School**, Belmont, MA

**September 2017 - June 2021**

Diploma, 4.0/4.0 GPA, 1520 SAT

## SKILLS

Languages: Python, SQL, R, Java, C/C++, Typescript/Javascript, HTML/CSS, Bash, Go, OCaml, Racket

Frameworks & Libraries: FastAPI, PySpark, React/Next.js, Django, TensorFlow, PyTorch, Pandas, OpenCV

Tools: Docker, Kubernetes (Minikube), Microsoft Azure, AWS, PowerBI, Firebase, Vercel

## EXPERIENCE

**Octus**, Boston, MA

**November 2025 - Current**

Data Developer

- Develop ETL frameworks for trade processing, portfolio management, portfolio optimization, compliance, and credit management functions using Python (Boto3, SQLAlchemy, Pandas), Snowflake, AWS, SQL, and Docker.

**Clearloop/Silicon Ranch**, Boston, MA

**June 2025 - August 2025**

Data Analytics Intern

- Developed full-stack web application dashboard for 24 Clearloop customers using React/Next.js, Firebase, and Vercel.
- Implemented user authentication, cyber security, database management, and data visualization techniques.

**John Hancock Financial**, Boston, MA

**May 2024 - August 2024**

Software Engineering Intern

- Utilized SQL in Azure Synapse and Python to identify 2,055 data inconsistencies in ingestion pipelines.
- Enhanced a data validation tool for Synapse, DB2, Oracle, and SQL Server databases to automate the validation process, eliminating manual effort and human error for 1,000+ tables across 13 specific databases.

**Clay**, Boston, MA

**June 2022 - August 2022, June 2023 - August 2023**

Software Engineering Intern

- Led initial development of application that generates lesson plans aligned with state and national standards for teachers; currently responsible for 250,000+ lesson plans saving teachers 737,000+ hours.
- Enhanced GPT-4 using Python by applying vector embeddings, improving model's accuracy and relevance.

**Xiaodong Qu Research Group**, Swarthmore, PA

**February 2022 - May 2023**

Research Assistant

- Led research using EEG hardware to collect 40+ nights of sleep data and developed algorithms to optimize teenage sleep health, resulting in a peer-reviewed paper at the 2022 HCI International Conference.

## PROJECTS (demos & code on website)

Demo ETL Pipeline

- Utilizes Python (Pandas, Numpy, Boto3, SQLAlchemy, Scikit-learn), MySQL, AWS S3, Snowflake and runs in Docker.

Data Platform from Tesla Powerwall

- Built a containerized React dashboard showing real-time data and analytics from my house's solar panels.
- Developed FastAPI backend to collect and process data, storage in Snowflake, deployment on Kubernetes.

Reinforcement Learning Chess Engine

- Implemented AlphaZero research in Python & C++, using a deep neural network and Monte Carlo Tree Search.

Algorithm Visualizers

- Machine learning: Implemented and visualized the mathematical foundations of KNN and SVM models in Javascript.
- Search: Implemented and visualized A\* and BFS/DFS search on grid and node layouts in Python.