# NATALIE ZHOU

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## Education

**University of Illinois at Urbana-Champaign (UIUC)** — **Champaign, IL**
*Bachelor of Science in Computer Science & Statistics (GPA: 3.95/4.0)* — Aug 2021 - May 2025

**National University of Singapore** — **Singapore**
*Exchange Student at the School of Computing* — Jan 2024 - May 2024

## Work Experience

**Software Engineer Intern, Guidewire Software** — May 2024 – Aug 2024

- Created infrastructure to build an AI code copilot assistant providing real-time code generation for custom programming language, enabling significant boost in developer productivity and efficiency.
- Implemented finetuning with PyTorch Transformers to teach a language model to generate code in-place from surrounding code context.
- Drove design and implementation of Java pipeline to index documentation in vector database and retrieve domain-specific context for each AI query (exact nearest neighbor search), enhancing response accuracy by 170%.
- Deployed end-to-end documentation retrieval pipeline on cloud, orchestrating workflow on AWS ECS and storing data in S3 and Postgres RDS vector database.

**Data Science Intern, IBM Chief Analytics Office** — May 2023 – Aug 2023

- Developed analytics interface to visualize business performance metrics, highlighting key findings for maximizing profit and enabling optimization of market resource allocation strategy.
- Automated data visualization using Python script (NumPy, Pandas), reducing view generation time from days to minutes.
- Structured and reengineered Python data pipeline code for processing, transforming, and validation of raw productivity data, reducing debug and testing time for development team.

**Software Engineer Intern, Workiva** — May 2022 – May 2023

- Implemented and tested graph database backend features using Kotlin and Java, enabling efficient storage and retrieval of large-scale graph data.
- Developed asynchronous data export endpoint enabling AWS S3 data upload and signed URL retrieval through API polling within the platform.
- Built internal Support Viewer tool to evaluate graph data by enabling vertex metadata retrieval, graph data reports, and search filter for graph edit history.
- Devised unit and integration tests maintaining comprehensive coverage of backend features, comprising graph traversal/data retrieval algorithms.

## Projects

**MelodyMetrics**
*Interactive Spotify listening trends web app, dynamically visualizing user habits compared to regional/global trends.*

- Led team of 4 in end-to-end dev process, coordinating team sprints, peer code reviews, and task distribution between frontend and backend team members.
- Implemented Spotify's oAuth Authorization Code Flow with Express route handlers on backend.
- Leveraged REST API requests to obtain data from Spotify API and display on React frontend.

**TimelyTravels**
*Full-stack web app pinpointing optimal public transportation routes in Sao Paulo from a source to destination.*

- Built endpoints and middleware to facilitate React.js frontend, Node.js backend, and database communication.
- Designed SQL queries and relational schema to store and retrieve data, leveraging Google Cloud Storage for cloud database management.
- Automated testing and deployment, leveraging GitHub integration for streamlined CI/CD.

## Skills

- **Languages:** Python, Java, C++, C, Kotlin, Javascript, Go, Rust, SQL
- **Frameworks and Libraries:** Node.js, Express.js, React.js, Pandas, Flask, PyTorch, Tensorflow
- **Tools:** Git, Jira, Docker, Gradle, Kubernetes
- **Cloud platforms:** AWS ECS, AWS RDS, AWS S3, Cloudwatch, Google Cloud Storage