

# Malachi Rosario

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## Education

### Illinois Institute of Technology

08/2022 – Current

*Bachelor of Science Computer Science*

Expected Graduation 05/2026

**Relevant Classwork:** Data Structures and Algorithms | Operating Systems | Database Organization | Systems Programming | Data Mining | Probability and Statistics | Linear Algebra | Object-Oriented Programming I, II | Data Science | Discrete Structures | Graph Theory | Calculus 1, 2, and 3

**Activities:** Pi Kappa Phi | SHPE | ACM | Exelon Summer Institute | CRU

## Experience

### Software Engineer Intern

06/2025 – Current

*BlackRock* Atlanta, GA

- Built a full-stack mobile app using Python, FastAPI, and React Native so clients and internal users can view, monitor, and interact with Snowflake hosted financial data on mobile devices.
- Engineered a dynamic query and filtering caching system that flattened tables and filters, with real-time synchronization and support for any database schema.
- Created a stock lifecycle visualization tool to display historical trends and key metrics across investment stages.

### Teaching Assistant (TA): CS 331 Data Structures and Algorithm

08/2024 – 12/2024

*Illinois Institute of Technology* Chicago, IL

- Taught data structures and algorithms in Python to improve time complexity and code optimization, including hash maps, stacks, queues, trees, graphs, and algorithms like binary search, divide-and-conquer, and greedy.

### Full Stack Software Engineer Intern

05/2024 – 08/2024

*Treevah* Chicago, IL

- Team lead for the demo, which raised over \$5000 from investors such as Microsoft for start-ups.
- Spearheaded the functionality of an online file management system using JavaScript and no-code-based software to build a working prototype.
- Provided the database and infrastructure design for this tech startup for deployment in Microsoft Azure.

### Teaching Assistant (TA): CS 116 Object-Oriented Programming II

01/2024 – 05/2024

*Illinois Institute of Technology* Chicago, IL

- Taught lessons on data structures, algorithms, recursions, object-oriented programming(OOP), and APIs in Java. Guided students, led labs, and offered office hours for Object-Oriented Programming II.

## Skills

**Languages:** Python | Java | C | SQL | R | JavaScript | HTML | CSS | OCAML | Bash

**Frameworks/Libraries:** React | FastAPI | Streamlit | Pandas | Node.js | Scikit-Learn | TensorFlow | React Native

**Developer Tools:** Git | GitHub | Azure | Snowflake | Airflow | Docker | Linux | Kafka | MySQL | Tableau | Figma

## Projects

### S&P 500 Stock ETL Pipeline and Dashboard

[View Project](#)

- Developed an end-to-end ETL pipeline using Python, Airflow, and Azure to collect and process stock data for S&P 500 companies in real-time. Containerized the system with Docker and built a Streamlit dashboard.
- Automated extraction from Yahoo Finance and transformed the data into structured formats, storing it in Azure Blob Storage and Azure SQL.
- Scheduled hourly price updates and monthly company refreshes with Airflow.

### Real-Time Pitch Predictor Engine

- Built a real-time pitch prediction engine using Python, Kafka, and a trained machine learning XGBoost model.
- Streamed pitch data from MLB StatsAPI through Kafka with one-hot encoding and Joblib for inference.
- Created an interactive Streamlit dashboard to display live pitch predictions and navigate game sequences.

### OCaml Compiler

- A simple compiler for an ML-like functional language, implemented in OCaml as a class project. This project includes a lexer, parser, type checker, and interpreter, demonstrating key compiler construction techniques.

### Tinder Clone

- Used React, FastAPI, and MySQL to build a full-stack CRUD Tinder clone web application.
- Configured the FastAPI backend with SQLAlchemy and Pydantic models for seamless database interaction.
- Designed and implemented REST APIs to handle user creation, swiping logic, and match management.