

# Richard Daniel Ayebare

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## Education

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- Massachusetts Institute of Technology**, BS in Computer Science and Economics Aug 2021 – Dec 2025
- **Relevant Coursework:** Computer Architecture, Data Structures and Algorithms, Econometrics, Reinforcement Learning, Machine Learning.

## Experience

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- Lead Software Engineer, DsideAI** – Boston, MA June 2025 – Aug 2025
- Led the development of an AI assistant tool for investment professionals. The platform was created using React, Django, MongoDB, yfinance API and the Gemini 2.5 Pro API.
  - The platform takes in user-defined preferences (such as risk tolerance/financial goal) and then creates a personalized equity and fixed income portfolio in under five seconds.
  - Demoed the product to clients at Bank of America and Kinney Munro Wealth Advisors. The company received pilot program commitments from both firms for further testing and refinement.
- Software Engineer Intern, Jane Street** – New York, NY May 2023
- Built a trading system in Python that placed top 5 (out of 20) in the company's in-house trading environment.
  - Designed and implemented market-making logic that identified and exploited inefficiencies in the bond markets.
  - Implemented the Snake game in Ocaml, with a focus on efficient scale management, scalable rendering and networked features like a live scoreboard.
- Software Engineer Intern, PipeIt.Co** – Boston, MA Jan 2025 – Mar 2025
- Developed two AI plugins for AutoDesl Revit using C# and the OpenAI API, automating design and support tasks for MEP engineers.
  - The first plugin generates plumbing objects in Revit from natural language prompts. The OpenAI API is instructed to return Revit Code which is then fed into the Revit API for execution.
  - The second plugin provides an in-app instant technical support within Revit. The chatbot is powered by the OpenAI API.

## Projects

### C++ Limit Order Book Simulator

- Built a C++ limit-order book simulator with limit/market order handling, cancellation, top-of-book queries, PnL tracking, and CSV logging.
- Implemented baseline market-making and Avellaneda-Stoikov strategies that dynamically adjust quotes based on inventory, risk aversion and market volatility.

### Scheme Interpreter

- Designed and implemented a Scheme interpreter in Python, implementing a tokenizer, recursive-descent parser, and a Read-Eval-Print Loop (REPL) with robust error handling.
- Implemented a frame-based environment model with parent-pointer tree structure to support lexical scoping, closures and higher-order functions.

## Technologies & Achievements

**Languages:** C, Python, C#, SQL, JavaScript, C++

**Achievements:** International Math Olympiad 2020, MIT Intramural Soccer Champion, MIT TA for Data Structures/Algorithms.