RYAN DUAN

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EDUCATION

Carnegie Mellon University *Pittsburgh, PA* **May 2025**

Bachelor of Science - Computer Science, Applied Mathematics

Selected Coursework: Machine Learning, Monte Carlo Simulation, Algorithm Design, Operating Systems

EXPERIENCE

Software Development Engineer August 2025 - Current
Amazon *New York, NY*

- Supported development of the AI powered "Help Me Decide" feature in Java, delivered via Coral RPC on core Amazon app shopping flows, contributing to $3M in realized revenue and $90M in projected annual revenue.
- Reconfigured a multilayer cache on a high-traffic request path between frontend and backend services to mitigate middleware timeouts and improve data retrieval latency for millions of customer requests.
- Decomposed the central monolithic feature-generation service behind "Help Me Decide" into an execution flow of modular components, improving backend extensibility in a heavily reviewed, high-risk codebase.
- Joined the team's 24/7 on-call rotation after two months tenure, monitoring dashboards and resolving high-severity production issues for the "Help Me Decide" feature.

Software Development Intern May 2024 - August 2024
Amazon *New York, NY*

- Designed and implemented a migration engine from scratch to transpile 99%+ of OpenXML documents to JavaScript string literals using an Abstract Syntax Tree in TypeScript, reducing manual contract template migration effort by 99% and accelerating the transition to Amazon's in-house system.
- Integrated the migration engine into AWS Lambda, utilizing serverless computing for efficient execution.
- Created a feature toggler that dynamically pulls features from DynamoDB and developed an error logger to identify unsupported features and track the overall translation success rate.

Software Development Intern June 2023 – August 2023
Bank of New York Mellon *Pittsburgh, PA*

- Collaborated with the Corporate Risk Technology team to automate and document over 70% of a critical CCAR capital organization and analysis tool using Python and pandas, reducing manual effort, improving risk-assessment efficiency, ensuring regulatory compliance, and saving hundreds of hours in annual audits and capital analysis preparation.
- Prepared thousands of data points for simulation in an Oracle SQL database and streamlined legacy VBA code to support smoother modeling workflows.

Teaching Assistant August 2022 - May 2025
Carnegie Mellon University *Pittsburgh, PA*

- Led recitations, office hours and graded assignments and exams for 50–150 students across four core Computer Science courses.
- Helped develop course materials, including a Python-based library for teaching computational probability.

SKILLS

Languages: Java, TypeScript, Python, C/C++, Go, OCaml
Cloud & Infrastructure: AWS (Lambda, DynamoDB, EC2, ECS)