

# Jack Ruan

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## EXPERIENCES

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### Capital One | Software Engineer

#### Certificate Management Team

Feb. 2025 - Present

- Integrated OpenTelemetry across 20+ AWS Lambda functions, enabling end-to-end distributed tracing, cutting debugging time by 40%, and doubling the speed of production issue detection
- Architected and deployed a serverless pipeline using AWS Lambda and SQS to automate the discovery of AWS accounts and their associated certificates across Capital One, streamlining certificate lifecycle management across thousands of accounts

#### HR Warehouse Team

Feb. 2024 - Feb. 2025

- Modernized a legacy ETL system by building a config-driven, serverless ETL platform using AWS Glue and PySpark, enabling the migration of 100+ ETL processes and reducing development effort by up to 79%; contributed to a patent submission
- Developed an upstream notification infrastructure leveraging AWS SNS, SQS, and Lambda to automate ETL pipeline triggers on vendor data arrival, improving integration speed by 50% and significantly reducing manual intervention
- Diagnosed and remediated 8 critical issues during an enterprise disaster recovery exercise; implemented corrective actions that enhanced system resilience and ensured uninterrupted data delivery in high-risk scenarios

### Meta | Software Engineer Intern

May 2022 - Aug. 2022

- Contributed to the Warehouse Data Privacy team in developing internal tools that support Meta's privacy commitments
- Designed and implemented 3 critical safety features for comprehensive end-to-end monitoring and management for data users
- Created 2 monitoring pipelines using Python and Presto to identify unintended methods users employ to bypass safety checks
- Designed and developed the user interface for the safety features using React, PHP, and GraphQL

### CIDAR Lab | Research Software Engineer Intern

June 2021 - Sept. 2021

- Developed 4 high-demand features for the open-source project 3DuF, an interactive web-based tool for designing custom microfluidic chips
- Implemented, tested, and integrated Hightower's and A\* routing algorithms to efficiently find a connection between components
- Developed key features, such as a keyboard shortcut for centering chip designs, significantly enhancing user experience
- Refactored 20% of the codebase using the Vue.js framework, converting legacy JavaScript code to TypeScript for maintainability

## EDUCATION

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### Boston University | Boston, MA

Sept. 2020 - May 2023

- Bachelor of Arts in Computer Science (Cum Laude)

### Georgia Institute of Technology | Atlanta, GA

- Master of Science in Cybersecurity

Starting Aug. 2025

## OTHER EXPERIENCES & PROJECTS

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### Boston University | Teaching Assistant

Aug. 2021 - May 2023

- Facilitated 12 discussion sections each semester and collaborated with the professors to develop curricula for undergraduate courses, including Introduction to Analysis of Algorithms (CS 330) and Computer Systems (CS 210)

### Windows Malware Implant & C2 Server | CS 501: Intro to Malware | <https://github.com/egreven/trynaPassFinalProject>

- Developed a malware implant and deployed it onto a Windows virtual machine, successfully extracted over 1000 Chrome passwords, cookies, browsing histories, and autofill data, along with capabilities for folder deletion and file upload/download
- Developed and deployed a command and control (C2) server using Flask on Heroku, implemented API for communication
- Designed the server to send commands over HTTP and store responses in a PostgreSQL database with SQLAlchemy

### Blackjack Advantage Playing Bot | <https://github.com/jackruan99/blackjack>

- Developed a program for perfect Blackjack, incorporating basic strategy, card counting, and both betting and playing deviations
- Created an autoplaying bot that simulated over 1 billion rounds of Blackjack, demonstrating

## CERTIFICATES & RELEVANT COURSES

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**Certificates:** AWS Certified Developer (Associate), CompTIA Security+ (SY0-601)

**Graduate Level Courses:** Data Science Tools and Application, Introduction to Malware, Cryptography, Network Security