

# Mustafa Alhelawe

New Jersey | (732) 337-8562 | [mustafa.alhelawe@gmail.com](mailto:mustafa.alhelawe@gmail.com) | [github.com/MooseAlhe](https://github.com/MooseAlhe)

## SKILLS

---

**Languages:** Scala, JavaScript, TypeScript, Python, C#, Java, C/C++, Bash

**Backend:** REST APIs, Distributed Systems, Microservices, JSON, CI/CD

**Frontend:** React, Node.js, Next.js

**Database:** PostgreSQL, Supabase, SQL

**AI / ML:** PyTorch, Scikit-learn, Reinforcement Learning, LLMs

**Tools:** Git, Cursor, Unity, Cypress, Gradle, Jenkins, Linux, Splunk

## EDUCATION

---

**Rutgers, The State University of New Jersey**

**New Brunswick, New Jersey**

*Bachelor of Science in Electrical and Computer Engineering*

Class of 2022

## WORK EXPERIENCE

---

**Software Engineer**

**Jersey City, New Jersey**

*Bank of America Merrill Lynch*

January 2023 – Present

- Own backend services within a distributed trade confirmation and allocation system processing millions of daily transactions across high-value institutional trades.
- Built and maintained allocation workflows supporting 10+ distinct trade flows, handling full trade lifecycles including matching, booking, confirmation, amendment, and cancellation.
- Built services to ingest and link orders from multiple upstream systems including FIX-based messaging and file-based workflows, enabling real-time trade matching and confirmation.
- Led migration of 300+ client configurations to a new JSON schema in AMPS SOW, improving query performance and reducing ongoing manual support.
- Replaced biweekly release-dependent YAML/Ansible onboarding flows with a self-service platform, enabling operations teams to onboard clients independently without engineering intervention.
- Achieved improved configuration reliability and reduced production risk by designing approval and diff-review workflows for configuration changes.
- Enhanced search and filtering capabilities, used by operations teams to navigate high-volume datasets more efficiently.
- Led coordination of global teams to ensure zero-downtime rollout of next-generation architecture across 15+ production servers.

**Cybersecurity Analyst Intern**

**East Rutherford, New Jersey**

*Capri Holdings Limited*

June 2022 – August 2022

- Performed vendor risk assessments on various corporate partners, analyzed security policies ensuring best practices were in place when confidential information was at risk.
- Utilized SIEM platforms such as LogRhythm to assist in Level 2 & 3 Information security events/alerts investigations and triage (i.e., detected unauthorized communications with banned IPs in locations that were shut down).
- Reviewed inbound suspicious emails for indicators of compromise with the assistance of CrowdStrike's sandbox tool.

## PROJECTS

---

*Finance App—Personal Finance & Shared Bills*

February 2026 – Present

- Personal finance application supporting bank account linking, expense tracking, shared bills, and automated repayment tracking across users.
- Designed full-stack architecture enabling secure financial data access, user authentication, and scalable workflows. (Next.js, TypeScript, Supabase, PostgreSQL)
- Integrated Plaid to connect bank data and power features such as spending breakdowns, recurring expense views, contact-based tracking, and reporting.
- Built server-side routes and API handlers for secure financial data retrieval and transaction syncing.
- Designed and prototyped AI-assisted finance workflows for natural-language spending queries, categorization support, and automated financial insights.

*AI Simulation Platform—Reinforcement Learning*

January 2025 – Present

- Built a custom simulation environment in Unity ML-Agents to train autonomous agents using PPO.
- Designed reward systems, state observations, and training pipelines for iterative agent improvement.
- Ran experiments, tuned hyperparameters, and analyzed performance metrics to improve learning stability.
- Developed production-style modular C# environment logic integrated with Python training pipelines.