Trenton Allan

(317) 746-5010 | allan.tr@northeastern.edu | github.com/trentonallan | linkedin.com/in/trentonallan
Available January – August 2026

EDUCATION

Northeastern University | Boston, MA   **Expected May 2028**
B.S. in Computer Science, Concentration in Artificial Intelligence | GPA: 3.75/4.00

- **Relevant Coursework:** Program Design & Implementation 2, Fundamentals of Computer Science 1 and 2, Discrete Structures, Foundations of Cybersecurity, Mathematical Reasoning
- **Honors:** Dean's List (2024, 2025)
- **Activities:** AI Club, Oasis NEU, Huskiers and Outing Club, Cheese Club

Hamilton Southeastern High School | Fishers, IN   **May 2020 – May 2024**
Core 40 with Academic Honors | GPA: 4.56/4.00

TECHNICAL SKILLS

Languages: Java, Python, JavaScript/Node.js, HTML/CSS, Racket
Tools and Frameworks: Git/GitHub, Linux, Express.js, React.js, PostgreSQL, NumPy, Jupyter, Godot
Skills: Object Oriented Design, Debugging & Unit Testing, Machine Learning Fundamentals
Certifications: Leveraging AI For Business, Northeastern University; Seal of Biliteracy (Spanish & English), IN.
Open Source: Fixed date serialization bug in node-postgres (11k+ stars) that corrupted PostgreSQL database entries

PROFESSIONAL EXPERIENCE

Backend Engineer | *Oasis NEU*   **Sep. 2025 – Present**
Peer-to-Peer Marketplace Platform | Boston, MA

- Architecting scalable Node.js backend supporting 75+ beta users and 500+ daily API requests for real-time marketplace, implementing microservices architecture for concurrent user sessions and inventory updates.
- Driving technical decisions on database schema design, API structure, and authentication flow while coordinating with 5-person agile team to deliver features in weekly sprint cycles.

Technical Program Lead | Cape Cod Theatre Company   **Summer 2021, 2022, 2023**
Technical Operations and Instruction | Harwich, MA

- Designed and deployed inventory system for 4,000+ assets using database principles and structured I/O logging, minimizing equipment loss by transforming manual tracking to systematic workflows.
- Facilitated technical programs across 3 summers with 100% on-time delivery while mentoring 50+ students per season; selected as "Most Valuable Intern" among 20+ candidates based on program impact.

Operations Associate | Chatham Cookware Café   **Feb. 2024 – Sep. 2024**
Retail Operations | Chatham, MA

- Prepared & processed 200-400 customer orders daily in fast-paced café, maintaining accuracy and efficiency.

PROJECTS

Dartfrog: High Performance HTTP/1.1 Server | *Systems Programming Project*   **May 2025**

- Engineered multi-threaded web server from scratch in Java supporting concurrent persistent connections with RFC-compliant request parsing, connection pooling, and comprehensive error handling.
- Optimized network performance through I/O strategies including non-blocking sockets, gzip compression, and content negotiation to maximize throughput and minimize memory use.

Credit Card System Simulator | *Object Oriented Design Project*   **Sep. 2025**

- Built a Java-based financial modeling system simulating real-world credit operations, incorporating APR calculations, payment processing, and dynamic credit limits using object-oriented design principles.
- Implemented robust test suite ensuring financial accuracy to 4 decimal places across all transaction types.

Neural Network from Scratch | *Machine Learning Implementation*   **March 2025**

- Developed 2-layer feedforward neural network from scratch using only NumPy, manually computing 12 partial derivatives through backpropagation.
- Achieved convergent loss through hand-coded gradient descent, training binary classifier without ML frameworks or autograd.