**Trenton Allan**

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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.