Joshua Segal

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Education

Northeastern University Boston, MA

Bachelor of Science in Computer Science, AI concentration, Math minor ***Expected: May 2026***

Honors: GPA: 3.7 | Dean's List (all semesters)

Relevant Coursework: Artificial Intelligence | Machine Learning | Natural Language Processing | Neural Networks Matrix Methods in ML | Calculus I, II, III | Linear Algebra | Probability & Statistics | Discrete Mathematics Software Engineering Algorithms & Data Structures | Object Oriented Programming | Computer Systems | Database Design

Technical Skills

Languages: Python | TypeScript/JavaScript | Rust | C | Java | SQL
Frameworks: FastAPI | Flask | Django | React | Node.js | Express.js | Tokio | SQLAlchemy | Prisma
ML/AI: PyTorch | TensorFlow | LLMs | RAG | Computer Vision | Fine-Tuning
Tools: AWS (ECS, RDS, Lambda, S3) | PostgreSQL | Supabase | Docker | Terraform | Git

Experience

Co-Founder & CTO **April 2025 - Present**

ZoneIQ - AI-Native Real Estate Brokerage *Boston, MA*

- Generated **$10k+** revenue across **5** brokerage firms and secured **$3k** seed funding for AI property analysis
- Built proptech platform eliminating **1k+** hrs/mo manual research via **web scrapers** analyzing **180k+** properties
- Deployed **research agent** searching **9k+** filings to identify comparable deals with **GPT-4o** and **Playwright**
- Developed **multi-agent AI** lead qualification system reducing time to respond from **2 hours to 4 seconds** through multi-step conversations using **Python** and **LLMs**, processing **1k+** messages/month
- Implemented custom agent router handling **5+** agents with **99%** routing accuracy using dynamic prompt injection

Tech Lead, Software Engineer **July 2025 - Dec. 2025**

NExT Consulting *Boston, MA*

- Led team of 6 engineers building production warehouse management system for hardtech startup using **Python/React**, eliminating **20 hrs/wk** manual tracking, improving accuracy from **50%** to **95%** for **10k+** items
- Designed **PostgreSQL** schema with **100k+ rows**, **50+** tables, **250+** fields, implemented alembic database migrations across dev/staging/prod, optimized data access patterns, achieving **2x** reduced network transfer volume
- Architected and deployed containerized **AWS infrastructure (ECS, RDS, S3)** using **Docker** and **Terraform** IaC with **CI/CD** pipeline (test, lint, build, deploy), supporting **250+** concurrent users

Machine Learning Engineer **July 2024 - Dec. 2024**

Harvard Research Lab *Boston, MA*

- Built end-to-end **ML infrastructure** training **U-Net** from scratch and fine-tuning **CNNs** locally, reduced analysis time from **20 min to 0.5s**/image; developed automated data pipeline handling preprocessing for **5000+** images
- Designed local database schema managing model versioning, experiment tracking, and artifact storage for **100+** training runs with full reproducibility, enabled **6+** researchers to iterate on models locally
- Increased segmentation precision from **61% to 93%** by implementing multi-user labeling using STAPLE algorithm

Projects

Search Benchmark & Engine | GitHub

- Designed competitive intelligence search benchmark evaluating **3+** search engines across **10+** SaaS products using **MRR** + **LLM-as-judge** metrics, revealing **15-30%** performance gaps between retrieval systems
- Built modular async Python evaluation engine processing **250+** queries/min, supporting batch runs and single-query inspection, versioned result artifacts for reproducible comparisons
- Engineered search engine factory pattern, implemented Exa, Perplexity, Tavily engines in **<5** minutes

NLP Similarity Research | Github | Report

- Built **NLP** evaluation system enabling researchers to compare presentations against papers for faster iteration, achieving **76%** recall on expert-labeled similarity judgments
- Implemented **LSTM RNN** and **Logistic Regression** from scratch in **PyTorch** and fine-tuned **DistilBERT** achieving **62%** accuracy across **570k+** samples via **Bayesian optimization** of hyperparameters