

Joel Brook

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Education

Northeastern University, Khoury College of Computer Sciences — BS in Computer Science Sept 2023 – May 2027

- **Relevant Coursework:** Algorithms & Data Structures, Computer Systems, Object-Oriented Design, Database Design, Cybersecurity, Network Fundamentals

Experience

Software Engineer Co-op, AMD – SoC AI Team Jan 2026 – May 2026

- Independently built and shipped a self-service React feature within a shared suite of internal engineering tools used by hundreds of engineers, owning it end to end from implementation through testing and deployment
- Integrated internal APIs to fetch valid configuration options and submit generation requests for config files and test/simulation inputs through a guided browser-based workflow
- Cut a 30+ minute manual command-line process to a few minutes, letting engineers unfamiliar with the underlying CLI tooling generate artifacts without locating, configuring, and running it

Founding Software Engineer, Bloom Mar 2025 – Aug 2025

- Joined during a ground-up rebuild of Bloom's cafe-loyalty platform and designed and built its Flask and MongoDB backend, working full stack across nearly every part of the product
- Built core flows end to end, including authentication, customer sign-up, and rewards logic, across the customer-facing rewards app and the merchant application
- Developed Espresso AI, a merchant analytics tool that turned transaction and customer data into loyalty and sales insights for pilot merchants

Co-Founder, Spirebluff Assets July 2024 – Present

- Co-founded and operate a collectibles business generating \$70,000+ in revenue, managing \$45,000+ in current inventory, and sustaining 80%+ net profit margins through strategic sourcing and pricing
- Built a full-stack inventory system and customer-facing catalog tracking 100+ products with pricing, details, and images, replacing spreadsheets and keeping private business data separate from the public site

Software Engineering Intern, Smart Reporting GmbH June 2024 – Aug 2024

- Engineered an automated backup system using AWS, Jira integration, and Ubuntu VMs that synced hundreds of internal documents every few hours, replacing a manual engineer-run process and strengthening disaster recovery
- Researched U.S. cybersecurity compliance requirements and competitive landscape to shape the company's North American market-entry strategy

Projects

Relay – AI Prior-Authorization Decision Engine | souprem.github.io/Relay Sept 2026

- Built a Python prior-authorization engine that turns TypeSafe Jev's typed, probability-scored judgments into safe actions, with a versioned policy engine (not the model) choosing auto-approve, request-info, or human review
- 1,000-case holdout: 25% auto-processed with 0 unsafe approvals and 90% correct, vs. 13% and 67% for rules only
- Designed an evaluation loop (100-case hand-built gold set, trace replay, 20 CI regression gates) that exposed a paused-medication flaw; the fix raised correct actions from 69% to 92% on a fresh 1,000-case holdout
- Matched Claude Opus on the gold set (91% vs. 93% correct) at ~136x lower cost per case
- **Technologies:** Python, Pydantic, Typer, TypeSafe Jev, Claude API, pytest, GitHub Actions, Next.js, TypeScript

Scryfall Search Discord Bot Oct 2025

- Built a Python Discord bot that uses the Claude API to translate natural-language queries into precise Scryfall search syntax for Magic: The Gathering card lookups
- Implemented fuzzy string matching for card-name recognition to resolve misspelled and partial queries; added SQLite-backed query logging for usage analytics
- **Technologies:** Python, Discord.py, Claude API, Scryfall API, SQLite

Technical Skills

Languages: Python, Java, TypeScript, JavaScript, SQL, C

AI & Data: Claude API, LLM evaluation, Pydantic, PostgreSQL, MongoDB, SQLite, Supabase

Frameworks & Tools: React, Next.js, Node.js, Flask, AWS, GCP, Git, Linux, pytest, GitHub Actions

Activities

First Team Competitor, Northeastern Fencing Team Sep 2024 – Present

- 1st place at BU Invitational, NEIFC Men's 3-Weapon Club Team Championship, and USACFC Club Nationals

Competitive Player, Magic: The Gathering 2022 – Present

- Multiple top-50 finishes at national-level events; prepared for Pro Tour events with professional testing teams