

Robert Hand

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EDUCATION

University of Illinois at Urbana-Champaign

Expected May 2027

Bachelor of Computer Science

Cumulative GPA: 3.9/4.0

Relevant Coursework: Applied Machine Learning, Database Systems, High Frequency Trading, Distributed Systems, Data Structures and Algorithms, System Programming, Numerical Methods, Software Design, Computer Vision

EXPERIENCE

Machine Learning Engineer Intern

May 2026 - Present

Capital One

McLean, VA

- Engineered incremental update architecture for code centric knowledge graphs, reducing graph build latency
- Reduced token usage and LLM inference calls up to 99% for single-file code edits using vector embedding caches
- Designed NetworkX graph update pipeline using blast radius technique, reducing exponential runtime to $O(N + E)$

Software Engineering Intern

May 2025 – April 2026

Synchrony

Chicago, IL

- Developed Java Springboot application for automated data pipeline control actions with EIS App Scorecard team
- Worked on app health dashboard API to monitor latency and CPU/Memory usage for all internal company apps
- Built automated test suite with 95% coverage for enterprise database systems in SQL and Cassandra

Undergraduate NLP Researcher

Sep. 2024 – October 2025

Forward Data Lab

Champaign, IL

- Worked with Prof. Kevin Cheng on RAG models for query-based research summarization and bias reduction
- Co-developed an open-source NLP tool utilizing the GPT Researcher API to automate unbiased survey paper generation

Software Engineer

Sep. 2024 – August 2025

Disruption Lab at Gies

Champaign, IL

- Deployed full stack workflow management tool for Data Science Research Institute
- Built CSV to interactive graph visualizer using React and VueJS
- Managed graph data with NextJS API and Neo4j database

Software Engineer

Sep. 2024 – Dec. 2024

Powerbox Technologies

Champaign, IL

- Modeled predicted power use in Latin America using an additive regression model
- Trained machine learning models on 200,000+ time series data using Google Cloud Platform and Prophet API
- Developed a cloud scheduler to regularly refresh client data using VertexAI

PROJECTS

MusicElo | musicelo.vercel.app | *ReactJS, Tailwind, NodeJS, FastAPI, Postgres SQL, Python, Supabase* July. 2025

- Built a full stack Elo rating site for 2500+ popular songs using Spotify API and Kaggle data
- Deployed FastAPI on Render to enable live voting and Elo leaderboard on React frontend
- Integrated Postgres SQL database on Supabase with API endpoints for fast rating calculations
- Scaled FastAPI to handle 1000+ API calls and optimized API functionality for lowered latency time

AltCredit | alt-credit-hack-illinois-2025.vercel.app | *ReactJS, NextJS, NodeJS, Python, Pyspark, Tailwind* Feb. 2025

- Deployed a full stack web application for HackIllinois Best Financial Tool track
- Built and deployed backend api for parsing and data extraction from financial documents
- Trained random forest learning model on pyspark for determining alternative credit scores
- Developed interactive UI using ReactJS, Typescript, and Tailwind for users to determine loan eligibility

TECHNICAL SKILLS

Languages: Python, C/C++, SQL, PostgreSQL JavaScript/Typescript, HTML/CSS, Java, Kotlin, Bash

Frameworks: React, NodeJS, NextJS, ExpressJS, Java Springboot, Flask, FastAPI, Postman, RESTful API, Neo4j

Developer Tools: Google Cloud Platform, Git, Docker, AWS, MongoDB, Claude Code, Jira, Kubernetes

Libraries: Pandas, NumPy, Matplotlib, Sympy, Scipy, Scikit Learn, Beautiful Soup, Pyspark, Tensorflow, Selenium