Kailin Xing

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Education

Northeastern University | Khoury College of Computer Sciences Sep 2023 – May 2027
Bachelor of Science in Computer Science, Minor in Computer Engineering | GPA: 3.6/4.0 *Boston, Massachusetts*

- **Relevant Coursework**: Algorithms & Data Structures, Object-Oriented Design (Java), Computer Operating Systems (C, Assembly, RISC-V), Database Design (SQL, NoSQL, JavaScript, Python), Networks (TCP/IP, UDP)
- **Competitions**: Harvard Undergraduate Trading Competition 5th Place Podium & News-Based Trading 3rd Place

Technical Skills

Languages: Python, Java, JavaScript, TypeScript, C, C++, SQL, Assembly, HTML, CSS, LaTeX, MATLAB
Frameworks: React, Next.js, Vue.js, Express.js, Node.js, Flask, Django, Swing, Tailwind, pthreads, OpenMP, CUDA
Databases & Cloud: MySQL, PostgreSQL, MongoDB, AWS (Amplify, ECS, ECR, EC2, S3), GCP, Pinecone
Technologies: Docker, Kubernetes, Terraform, Slurm, Postman, Apache Spark, Hadoop, Git, Bash/Shell scripting

Experience

Boston Red Sox July 2025 – Present
Software Engineer Co-op | Django, React, Vue.js, PostgreSQL, Terraform, GCP *Boston, Massachusetts*

- Led migration of core front-end modules from Vue.js to React, refactoring 15+ components to improve render performance by 25% and streamline state management with Redux.
- Designed and deployed infrastructure as code using Terraform on GCP—provisioning Compute Engine, Cloud SQL, and Cloud Storage while ensuring reproducible deployments.

Northeastern University College of Engineering ECE Department May 2024 – Present
Software Engineer/Research Assistant | C/C++, OpenMP, OpenCV, pthreads, CUDA, Linux *Boston, Massachusetts*

- Optimized image processing performance by implementing C- and CUDA-based acceleration with pthreads and OpenMP, reducing process time by 200% on large-scale images on Linux system using Slurm for job scheduling.
- Engineered and optimized over five edge detection filters—including Sobel, Prewitt, and Roberts—by developing CUDA-accelerated C++ kernels integrated with OpenCV, enabling real-time GPU processing on image data.

Northeastern University Lokey School of Business and Social Sciences Jun 2024 – Feb, 2025
Data Engineer/Research Assistant | Selenium, Pandas, bs4, NLTK, SQL, Python *Oakland, California (Remote)*

- Engineered a scalable ETL pipeline in Python leveraging Selenium and Scrapy to automate ProQuest authentication and scrape 350K+ articles, and cleaned data with NLTK with normalizing using Pandas for downstream analysis.
- Architected and maintained a MySQL database schema, authoring complex SQL queries to load, index, and aggregate cleaned records—reducing query latency by 30% and enabling ad-hoc research insights.

Projects

EdgeDetectr: Edge Detection Platform | *C++, OpenMP, Express, Next.js, CUDA, AWS* Dec 2024 – Mar 2025

- Engineered a full-stack, cloud-deployed edge detection platform with 5+ operators, processing images 5x faster with a CUDA-accelerated C++ backend, Express.js API, and a Next.js frontend, fully containerized via Docker.
- Deployed a multi-container architecture with AWS ECS (backend) and AWS Amplify (frontend), enforcing a 30-second rate limit, and optimizing RESTful API communication for seamless image processing workflows.

Three Trios: Strategy-Based Card Game | *Java, Swing, JUnit, MVC Architecture* Oct 2024 – Dec 2024

- Assembled a modular two-player card game using the MVC design pattern, incorporating strategy-based gameplay with features like "max card flip" and "corner targeting" algorithms.
- Designed scalable components for grid configurations, card flipping, and rule variations, ensuring extensibility and achieving 100% unit test coverage through comprehensive JUnit testing.

Spotify Content-Based Recommendation System | *Spotipy, Plotly, Pandas, Python* Nov 2024 – Dec 2024

- Developed a Python-based music recommendation system using Spotipy and Streamlit, classifying 1,000+ songs by features like tempo with a Perceptron algorithm and delivering real-time visualizations for 10+ metrics via Plotly.
- Streamlined data workflows by automating retrieval, processing, and storage with Pandas, optimizing API calls by 30% using JSON caching and session management.