Kailin Xing

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Availability: July - Dec 2025

Education

Northeastern University, Boston, MA | **Khoury College of Computer Sciences** Sep 2023 – May 2027

Candidate for a Bachelor of Science in Computer Science, Minor in Computer Engineering ***GPA**: 3.6/4.0*

- **Relevant Coursework**: Algorithms and Data Structures, Object-Oriented Design (Java), Computer Systems (C, Assembly), Database Design (SQL), Logic and Computation (ACL2), Fundamentals of Computer Science (Kotlin)
- **Competitions**: Harvard Undergraduate Trading Competition 5th Place Podium & News-Based Trading 3rd Place
- **Activities**: rev, Electric Racing, IEEE Student Branch, AI Club, Undergraduate Research Club

Technical Skills

Languages: Python, Java, JavaScript, C, C++, SQL, Assembly, HTML, CSS, LaTeX, Kotlin, MATLAB, ACL2s
Frameworks: Flask, Django, NumPy, pandas, Streamlit, Swing, MySQL, SQLite, Tailwind, pthreads, OpenMP, CUDA
Technologies: AWS, Pinecone, Linux, Slurm, Docker, Postman, Conda, npm, Git, Homebrew, Jupyter, JetBrains
Concepts: Object-Oriented Design, Test-Driven Development, Software Engineering, Back End, Relational Database, Front End, Full Stack, Parallel Programming, Data Analysis, Mobile Development
Interests: Road Cycling, Boxing, Tennis, Football, Basketball, Skiing, Table Tennis, Guitar, Singing, Photography

Experience

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 tiling, reducing execution time by 200% on large-scale images on a Linux(Unix) system.
- Integrated and enhanced 5+ edge detection operators (Sobel, Prewitt, Roberts, etc.) using OpenCV and CUDA, achieving real-time GPU-accelerated processing.

Northeastern University Lokey School of Business and Social Sciences Jun 2024 – Feb, 2025

Software Engineer/Research Assistant | Selenium, Pandas, Scrapy, bs4, NLTK, Python *Oakland, California (Remote)*

- Collected and cleaned media coverage data on lower court decisions using Selenium, Pandas, and NLTK , to ensuring high-quality research data for analysis.
- Developed a scraping pipeline to retrieve over 350K articles from ProQuest, using Selenium for login automation and Pandas for storing results, facilitating efficient data analysis.

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.

Academic Advisor AI Agent | *RAG, LangChain, Streamlit, MySQL, Vue.js, Python* Mar 2024 – Mar 2024

- Implemented a RAG pipeline using Pinecone and LangChain to vectorize and query data from 120+ courses, improving response accuracy and reducing query time by 20%, leveraging machine learning for intelligent retrieval.
- Engineered a Streamlit admin dashboard integrated with MySQL for efficient data handling, streamlining backend operations and enhancing user experience with auto-completion and search optimization.