# Andrew Luo

luo.andrew.01@gmail.com | https://www.linkedin.com/in/andrew-luo-82b60a1b1/ | https://andrewluo.dev/ | 984-329-6210

## EDUCATION

**University of North Carolina at Chapel Hill - Chapel Hill, NC** **August 2023 - December 2026**
*Bachelor of Science in Computer Science, 3.834 GPA*

## TECHNICAL SKILLS

- **Programming & Scripting**: Java, Python, TypeScript, JavaScript, HTML, CSS, Bash, C.
- **Frameworks & Libraries**: React, Next.js, Tailwind CSS, JavaFX, Flask, scikit-learn, OpenCV, MediaPipe, Tensorflow, Android.
- Tools & Platforms: Docker, Git, Linux, Node.js, npm, Yarn
- **Databases & AI/ML:** Vector Databases (Pinecone/Chroma), Retrieval-Augmented Generation (RAG), Machine Learning Pipelines, Data Preprocessing, Model Training & Evaluation
- **Concepts & Methodologies**: Algorithm design patterns, MVC architecture, full-stack development, event-driven programming, asynchronous processing, version control workflows, API integration, Linux.

## RELEVANT COURSEWORK

- Algorithms, Data Structures, Systems Sequence, Code Structuring, Mobile Computing Systems, Models of Languages and Computation, Video Encoding.

## RELATED PROJECTS

**Driver Finding System for Rideshare Programs (Java): April 2024**

- Designed and implemented algorithms for managing driver pools in a ride-sharing app, improving driver allocation functionality.
- Applied proximity-based filtering using Manhattan distance for efficient driver selection in urban grids.
- Developed dynamic range expansion to optimize driver searches across multiple iterations.
- Created interleaving iterators to manage and balance driver pools using snake-order traversal.

**Akari Puzzle Game (Java): December 2024**

- Full-Stack Development with JavaFX and MVC Architecture, with a responsive GUI.
- Enabled gameplay with lamp toggling, light propagation, and real-time puzzle-solving feedback.
- Built intuitive controls for puzzle navigation, board resetting, and dynamic support for varying board sizes, enhancing user engagement with observer pattern or seamless model-view updates and responsive UI.

**Retrieval-Augmented Generation Chatbot (Python): April 2025**

- Built an AI chatbot using Retrieval-Augmented Generation (RAG) in Python for accurate, context-aware responses
- Integrated document retrieval and language generation to enhance user interaction and relevance
- Applied NLP techniques and vector databases to enable real-time information extraction from custom data sources

**Spotify-Tinder (React): June 2025-July 2025**

- Built a full-stack Next.js app integrating the Spotify Web API to allow users to swipe through song previews and add to liked songs when swiping right with a Tinder-style swiping interface.
- Implemented OAuth 2.0 authentication flow with Spotify, dynamically fetching recommended tracks, and managing playlist modifications based on user interactions.
- Implemented genre generation from Spotify genre Seeds.

**Real-time Focus & Mood Detector (Python): August 2025**

- Built a webcam pipeline that collects 500+ facial/pose landmarks (33 pose + 468 face mesh) with MediaPipe, logs them to CSV, and trains multiple classifiers (Logistic Regression, Ridge, Random Forest, Gradient Boosting) with a standardized scikit-learn pipeline.
- Achieved real-time inference with on-screen labels & probabilities; triggers platform notifications and non-blocking audio cues.
- Implemented an asynchronous WAV player and a configurable event system to map predicted labels (e.g., “Distracted”) to custom actions.