Steven Kiss

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Education

Purdue University GPA: 3.88/4.0 — West Lafayette, IN
BS in Computer Science, Concentration in Machine Learning; Minor in Mathematics — *Aug. 2023 – May. 2026*

Projects

E-commerce Platform with Messaging | *Java*
- Created a real-time messaging application using a **multi-threaded client-server model**, enabling direct communication between vendors and customers.
- Implemented a custom GUI with integrated **encryption and privacy safeguards** to protect sensitive user interactions.
- Added persistent storage to ensure **message durability and recovery** across sessions and system failures.

Shell Interpreter | *C++, Flex, Bison, UNIX* — Mar. 2025 – Apr. 2025
- Developed a fully functional **UNIX-like shell** with features from Bash and csh, supporting **pipes**, **I/O redirection**, **subshells**, wildcard expansion, and **environment variable** handling.
- Implemented **signal handling** for `Ctrl-C`, preventing zombie processes and enabling process cleanup.
- Built a custom **line editor** with command history, cursor movement, and file path **autocompletion**.
- Added extra features like **.shellrc sourcing**, **process substitution**, `${PID}`, `${?}`, `${!}`, tilde expansion, and a dynamic shell prompt.

C Compiler | *C, x86-Assembly, YACC, LEX*
- Built a lightweight C compiler featuring **custom lexical and syntactic analyzers**, translating source code into intermediate assembly forms.
- Wrote YACC grammar and LEX token rules to drive **precise syntax validation and code generation**.

Chinese Language Practice App | *React Native, Firebase, Flask, Python, TypeScript*
- Built a full-stack mobile app with **custom flashcards, progress tracking**, and Firebase auth, made for Chinese learners.
- Parsed DOCX vocab with Flask and **regex-based extraction** to auto-generate flashcard sets.
- Added HanziWriter for **character stroke practice** with real-time feedback and auto-checking.
- Implemented gestures like **swipe-to-sort, card flip**, and undo using Animated API and Swiper.

DoodleVault – Drawing Dataset Creator | *React, Firebase, Firestore, HTML Canvas*
- Built a web app for creating drawing datasets with **live config sync** and support for **multiple datasets per user**.
- Designed a canvas that auto-resizes inputs to **28x28** and stores both base64 + grayscale arrays.
- Enabled public submissions via **QR-shareable links** with label tagging and real-time preview.
- Added CSV export of labeled data in **pixel/base64** format for seamless ML pipeline usage.

Experience

Undergraduate Researcher | Python, Scikit-learn, Scrum, Data Analytics, K-means — Jan. 2025 – present
National Space Intelligence Center through the Purdue Datamine — *West Lafayette, IN*
- Analyzed continental U.S. sensor data using K-means, hierarchical clustering, DBSCAN, GMM, and ST-DBSCAN, finding K-means best mirrored U.S. biomes.
- Developed an algorithm to track monthly cluster evolution via a global cluster pool, identifying temporal trends.
- Delivered insights on seasonal variations in optical and laser sensor data to enhance system performance.

Campus Representative | Marketing, Outreach, Communication, Event Planning — Feb. 2025 – present
Simplify — *San Francisco, CA*
- Represent Simplify at Purdue, promoting its job search tools and Chrome extension to the student body.
- Lead on-campus campaigns and organize events to boost brand visibility and user engagement.
- Coordinate with Simplify's core team to tailor marketing strategies based on student feedback.

Semiconductor Summer Intern | Verilog, Xschem, Netgen, OpenLane — Jun. 2022 – Aug. 2022
The Mitre Corporation — *Colorado Springs, CO*
- Developed application-specific integrated circuit (ASIC) for a transistor-based ring oscillator.
- Gained proficiency in Verilog HDL, design verification, and EDA tools such as Xschem, Netgen, and OpenLane.
- Conducted circuit simulations, schematic and layout design, and clock signal propagation in a 50MHz oscillator.
- Mentored a co-worker by teaching semiconductor design and verification methodologies.

Skills and CourseWork

CourseWork: Problem Solving and Object Oriented Programming, Multivariate Calculus, Intro to Statistics, Foundations of Computer Science, Programming in C, Linear Algebra, Computer Architecture, Data Structures and Algorithms, Systems Programming, Data Mining and Machine Learning, Artificial Intelligence
Skills: Python, Pandas, Matplotlib, scikit-learn, Latex, Tensorflow, JavaScript, HTML/CSS, C, React Native, Expo, Firebase, Github, Flask, Shell Scripting, Assembly, PyTorch, SQL