SHINWOO KIM

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EDUCATION

Master of Computer Science, University of Pittsburgh — Expected 2025
Bachelor of Computer Science, University of Pittsburgh — 2021 - 2024 (GPA: 3.9/4.0)

Relevant Coursework

Operating Systems	Compiler Design	Machine Learning	Theory of Computation
Distributed Systems	Computer Architecture	Algorithm Design	Honors Linear Algebra
Database Systems	Computer Organization	Software Quality Assurance	Honors Mathematical Analysis

EXPERIENCE

Teaching Assistant
CS0449: System Software & CS0441: Discrete Structures — Aug 2022 - Present
Department of Computer Science, University of Pittsburgh — *Pittsburgh, PA*

- Teach core topics in systems programming and discrete structures to a recitation with more than 30 students.
- Develop various course materials using x86 assembly and the C programming language.
- Provide comprehensive one-on-one academic support to students in office hours.

Software Developer — Jul 2021 - Present
Swigonova Lab, University of Pittsburgh — *Pittsburgh, PA*

- Created a free and open-source library of various 3D macro-molecular models to be used in the classroom.
- Using various open-source libraries and tools, created the front-end for the web page that displays each model and accompanying information sheet in the browser (https://touchtheinvisible.com)
- Created a easy-to-use Content Management System that allows non-technical lab members to easily manage assets and edit the website.

PROJECTS

Hyperparamter Optimization in ML-based Intrusion Detection Systems.
Worked with Dr. Daniel Mosse and Dr. Silvio Quincozes to optimize hyperparameters in an effort to enhance the efficiency and effectiveness of intrusion detection systems (IDS) based on machine-learning methods. Similarly, worked on the development of machine-learning models that are not just effective, but are also transparent and human-interpretable (Explainable AI).
Technologies Used: *Python, scikit-learn*

Zepto: A Minimal Text Editor.
Built a minimal Vim-like text-editor which supports text search/matching and syntax highlighting using C and various Linux system calls.
Technologies Used: *C, glibc, Linux (ABI)*

BeSocial: The Pitt SNS.
Created a database back-end for a social networking system for use at the University of Pittsburgh with various server-side functions. Additionally, created a proof-of-concept front-end interface to demonstrate functionality and ensure concurrency testing.
Technologies Used: *PostgreSQL, Java, JDBC*

Special Needs Assistance Program for Social Engagement.
As the inaugural Chief Technical Officer, oversaw the inital development of the SNAPFSE app which aimed to connect neurodiverse and neurotypical communities utilizing a matching algorithm, in-app chat, and cloud databases. Additionally, created the website for the Pittsburgh-based non-profit Special Needs Assistance Program for Social Engagement.
Technologies Used: *React (Native), Expo, Firebase, HTML, CSS, Tailwind CSS, JavaScript*