Seiya Kozakai

(206) 319-6646 - seiyak@umich.edu - linkedin.com/in/seiya-kozakai

ACADEMICS

University of Michigan Ann-Arbor Expected: May 2024
B.S.E. Computer Engineering GPA: 3.6/4.0

Languages	English (native), Japanese (native), Chinese (intermediate)
Technical Languages	C, C++, MATLAB, Python, Rust, Julia, Java, JavaScript, Verilog
Tools & Frameworks	ARMv8 (AArch64), x86_64, Docker, FPGA, Git, Jupyter, Linux, Windows

WORK EXPERIENCE

Johns Hopkins Applied Physics Laboratory (APL) — Intern - Secret May 2023 - Aug 2023

- Worked as an Acoustic Algorithms Engineer on various US Navy projects including one focused on side-scan sonar to detect deepsea mines, as well as a vertical-line array to detect ships and submarines.
- Developed a novel custom API binding C++ Libraries and algorithms with Python data readers.
- Optimized codebase at the compiler-level for a 30% increase in execution speed and less read/writes.
- Translated prototype algorithms, such as Least Squares Target Motion Analysis (LSTMA) and Automatic Target Recognition (ATR) from MATLAB code into computationally-efficient C++ algorithms.
- Created unit tests for various software projects using Pytest and GoogleTest, speeding development.
- Gained team development skills, pushing a project phase to completion 1 month ahead of schedule.

NCKU Intelligent Information Retrieval Laboratory — AI Intern June 2022 - September 2022

- Analyzed recent developments in AI and deep learning research, such as the rise of transformers, with professor Chiang Jung-Hsien in National Cheng Kung University (NCKU), Taiwan.
- Implemented machine learning models such as CNN (Resnet) and GAN in the biomedical field.
- Proofread research papers of graduating master's students for linguistic and technical accuracy.

PROJECTS

Spatial Sound Synthesis — Digital Signal Processing January 2023 – April 2023

- Implemented algorithms and experimentation to create spatial/binaural sound reproduction using spherical harmonic analysis, interaural time/level difference, and digital filter design.
- Empirically modeled room response to predict sound direction and create a personalized binaural sound.

Music Synthesizer App — Digital Signal Processing March 2022 – April 2022

- Created a Synthesizer GUI application in Julia with 5+ instruments, reverb, chorus, and a piano roll.
- Designed instrument model-based synthesis based on research with 85% similarity to real recordings.

Notes for Frontliners — Data Management April 2020 – May 2021

- Created a website (link) using React.js to collect gratitude notes during the Covid-19 Pandemic.
- Delivered notes to over 12 participating health & care facilities across the Greater Seattle Area.
- Designed the backend application for the Firebase server to manage data seamlessly.

LEADERSHIP

FIRST Robotics Team NRG 948 — Programming Lead September 2018 - June 2021

- Taught Java, computer vision, and software development skills to a team of over 32 programmers.
- Utilized Agile Project Management and Azure DevOps to streamline internal communication.
- Programmed the robots control system, autonomous routines for path-finding and target recognition.
- Performed repairs in the Pit Crew at competitions. Our FRC team placed Finalist in Worlds 2019.

EXTRACURRICULARS & AWARDS

- N1 Certificate Japanese-Language Proficiency
- Japanese National Special Award of Japanese Calligraphy (2021)