Zhongyang(Kevin) Shao

Seattle, WA 98105 | kshao918@uw.edu | 614-260-3431

EDUCATION

University of Washington **Seattle, WA**
MS in Electrical and Computer Engineering Sept. 2022 - Jun. 2024(Expected)

The Ohio State University **Columbus, OH**
BS in Electrical and Computer Engineering Aug. 2018 - May 2022

- **GPA:** 3.731/4.0 (Magna Cum Laude)
- **Related Coursework:** Engineering Design Process, Data Structure, Discrete Structures, Digital Logic and Design, Operating System, Statistics, Linear Algebra, Machine Learning, Signals and Systems, Computer Architecture and Design, Engineering Technical Communication

TEACHING EXPERIENCE

University of Washington **Seattle, WA**
Graduate Teaching Assistant (EE 215) Jan. 2023 – Present
Graduate Teaching Assistant (Study Abroad Program EE 215 in Lausanne, Switzerland) Aug. 2023 – Sept. 2023

- Prepare review materials and conduct quiz sessions.
- Hold regular office hours, tutor students, and manage and respond to course-related emails.
- Proctor exams, grade exams and lab reports, and attend instructor/TA meetings.
- Help organize lab materials, design quizzes, and lead quiz and lab sessions for the Engineering Switzerland Study Abroad Program led by Prof. Karl Böhringer.

The Ohio State University **Columbus, OH**
Undergraduate Teaching Assistant (Fundamentals of Engineering 1181 and 1182) Aug. 2019 – May 2022

- Explored and led in-depth on various classical topics and design projects in the engineering with instructional team and students in the phase of the problem definition involved research plan, user needs, and value proposition, concept development, and detailed design.
- Attended class and lab sessions to assist students in their development of skills in laboratories and lectures.
- Graded assignments, hold office hours, and conducted review sessions to help students prepare for exams.
- Joined in SILT(Student Instructional Leadership Team) Mentorship Program to provide assistance for new teaching assistants and share experience with freshmen in the College of Engineering.

RESEARCH EXPERIENCE

Elevating Black Corpus and UX in Speech & Language Systems **University of Washington** **Seattle, WA**
Graduate Research Assistant Mar. 2023 – Present
(Graduate PI: Jay Cunningham, PhD Candidate; Faculty Advisors: Professors Daniela Rosner and Julie Kientz)

- Conducted an audit of three existing corpora that encompasses African American English.
    - Performed a semi-systematic audit of the metadata associated with each corpus, cross-referencing the attributes with sociolinguistic indicators of linguistic variation and ethnic diversity.
- Contribute to the effort “Responsibility and Representation in NLP Data Practices,” employing survey and focus group interview methodologies.
    - Explore consensus-building strategies, success metrics, and quality assurance methods in NLP data production.
    - Investigate approaches to address issues of exclusion, discrimination, and bias within NLP dataset creation, emphasizing strategies to ensure fairness.
    - Identify methods to enhance user representation and AI accountability within NLP data practices.
    - Gain insights into challenges and opportunities in NLP data production, shedding light on the pivotal role of policy in algorithmic discrimination protections.
    - Plan to incorporate data analysis results into the development of more inclusive and equitable NLP systems.

Natural Language Processing in ChatGPT **Virginia Tech** **Remote**
Assistant Professor: Andrew Katz June. 2023 – Present

- Explore the use of generative AI models, specifically ChatGPT, to analyze the impact of AI tools on students' learning and teachers' teaching practices.
- Evaluate ChatGPT's ability to accurately identify topics in comments gathered from social media (i.e. Reddit).

Bycatch: Fishery Detection and Tracking **University of Washington** **Seattle, WA**
Graduate Research Assistant (Professor: Jenq-Neng Hwang) Sept. 2022 – Dec. 2023

- Worked on and resolved the overfitting issues of the imbalanced dataset between salmon and non-salmon.

Control and Intelligent Transportations Research **The Ohio State University** **Columbus, OH**
Research scientist: Ekim Yurtsever Apr. 2021 – Apr. 2022

- Proposed and developed a small-scale research platform for intelligent transportation systems.
- Solved various dependencies issues and used OpenPCDet to train the KITTI Datasets.
- Used the YOLO algorithm and proposed an approach to extract bidirectional vehicle counts from a moving observation platform with ROSBAG extraction simultaneously and trajectories of observed vehicles.

COVID-19 Analysis with Machine Learning **University of California** **Remote**
Assistant Professor: Pengtao Xie May 2021 – Aug. 2021

- Utilized a DARTS structure-based machine learning method, which can apply to neural architecture search on CIFAR-100, CIFAR-10, and ImageNet, to develop the Learning by teaching (LBT) algorithm in a team setting.
- Applied the provided LBT algorithm to the COVIDx dataset and compared our training results with the model COVID-net to identify the effectiveness.

PROJECTS

Making Electric Vehicle Charging Fun **University of Washington** **Seattle, WA**
Team Leader (Faculty Advisor: Professor David B Laning, Sponsors: Ford & Envorso) Jan. 2023 – June. 2023

- Created a solution that can provide a reliable and accurate assessment of whether or not chargers are working, to generate a more positive charging experience for electric vehicle (EV) owners.
- Developed a cloud computing system that can analyze the raw data received from the vehicle's state of charge (SoC), determine the health of an EV charger and estimate charging time using machine learning models, and send statistics back to the iOS app.
- Designed a user-friendly app with SwiftUI framework that can display cloud-based data about chargers' health with live charging updates and integrate a mapping feature that provides quick routing options via Apple Maps.
- Verified and validated the design by interviewing 5 users that answered the same questionnaire using multiple 1-5 scale questions for design evaluation.

Direction of Arrival Estimation with Nonuniform Sparse Arrays **The Ohio State University** **Columbus, OH**
Undergraduate Team Leader (Faculty Advisor: Professor Lee C Potter) Jul. 2021 – May 2022

- Designed, constructed, and operated a narrowband sparse sensor array to estimate direction of arrival (DoA).
- Utilized MATLAB programs and MLE estimator to determine DoAs from relative phases of each sensor in the linear and planar sparse array geometries.
- Demonstrated the array placement strategy and DoA estimation techniques presented in Ohio State University (OSU) invention disclosure T2022-060.

PROGRAM INVOLVEMENT

Humanitarian Engineering Scholar Program **The Ohio State University** **Columbus, OH**
Faculty Leader: Rachel Tuttle **Aug. 2018 – May. 2020**

- Contributed to the thought and dialogue needed to create change in the value system of Humanitarian Engineering by exploring an ethical framework.
- Applied engineering concepts to create solutions for local community via attending various community service.

- Established understanding of humanitarian engineering-related concepts which covered in 1181.02 and 1182.02, including varying hands-on team labs and a team design-build project (Advanced Energy Vehicle).
- Participated in a team design-build program (Toy Adaptation Program) to help children with disabilities.

SKILLS

- Programming: Matlab, SQL, Python, Java, C, ROS, Linux, Arduino programming
- Design: Figma, SwiftUI, Web design (HTML, CSS, JavaScript), Engineering design process
- Modeling and Fabrication: SolidWorks, CorelDRAW, 3D printing, Laser cutting
- Others: Problem-solving, Project management, Technical communication, Leadership