

CHANG ZENG

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EDUCATION

UNIVERSITY OF MASSACHUSETTS AMHERST Amherst, MA, 2022-Present
Mater of Science, Major in Computer Science, Bays State Fellow 3.895 GPA

UNIVERSITY OF MASSACHUSETTS AMHERST Amherst, MA, 2018-2022
Bachelor of Science, Major in Computer Science; Major in Environmental Science 3.832 GPA

AWARDS

- **Bay State Fellowship** at the University of Massachusetts Amherst.
- **Dean's List** recipient for the following semesters: Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, and Spring 2022 at the University of Massachusetts Amherst.

RESEARCH EXPERIENCE

FAIRNESS ELICITATION Amherst, MA
Research Assistant (Optimization, Algorithm, Fairness Division) 2022-Present

- Proposed **optimization** bounds for the supremum distance between power mean functions through a detailed examination of their properties.
- Introduced **algorithms** for eliciting the ϵ -approximate Human Cardinal Fairness Concept from a wide range of Power Mean Fairness Concepts.
- Explored methods to transform abstract situations in **Fairness Division Problems** into mathematical comparisons involving concrete power mean fairness concepts.

PUBLICATION

- CYRUS, C. CHANG, Z. AND YAIR, Z. "HUMAN-AI COOPERATION FOR PERSONALIZED FAIRNESS ELICITATION." WORK IN PROGRESS.
- CHANG, Z. AND KAI, Y. "WHEN KEYPHRASE EXTRACTION MEETS LARGE LANGUAGE MODEL." WORK IN PROGRESS.

WORK EXPERIENCE

X-CAMP TECH TEAM INTERN Amherst, MA
Software Engineer - Full-Stack (Go, Git, Test&Debug, CI/CD, Kubernetes, Docker) 2023-Present

- Designed and developed a **scalable architecture** using **Golang** to seamlessly integrate Zoom API functionalities into existing systems, resulting in improved teaching and learning experience.
- Utilized an automated **CI/CD** workflow for building and deploying to a remote **Kubernetes** cluster, facilitating seamless service scaling and management in a **containerized** environment.

PROJECT EXPERIENCE

AUTOENCODER OPTIMIZATION

Amherst, MA

Software Engineer - Back-End (Python, Deep Learning, MLP, CNN, RNN)

2022-2023

- Developed an **autoencoder** with a **backpropagation** mechanism to effectively denoise individual heartbeats from electrocardiogram signals, enhancing signal quality and accuracy.
- Performed a comprehensive comparison between linear and non-linear structures, including **CNN** and **RNN**, to evaluate their performance in optimizing the denoising process.
- Employed academic research methodologies to methodically **fine-tune** autoencoder model parameters, incorporating strategies like **scheduled learning rate** adjustments and varied **layer structures**, resulting in elevated denoising capabilities and heightened accuracy.

WUHUU INFORMATION SHARING PLATFORM

Amherst, MA

Software Engineer - Back-End (Python, Crawler, AWS S3)

2022-2023

- Developed customized **crawlers** utilizing Python to systematically gather data from social platforms, focusing on user engagement trends, content popularity, and sentiment analysis.
- Implemented a robust storage infrastructure using **AWS S3** to securely store and retrieve shared files, while optimizing data retrieval and minimizing latency.

FACIAL ACTIVITY TRACKING

Amherst, MA

Software Engineer - Full-Stack (Python, Machine Learning, OpenCV, CUDA)

2022-2022

- Employed various machine learning models, including **BERT transformer (TensorFlow)**, along with advanced techniques such as **random forests** and **stratified k-fold**, to accurately classify facial behavior patterns.
- Utilized **OpenCV** libraries to capture and process live camera feed in real-time, extracting relevant features from the eye images, such as pupil dilation and eye movement, to analyze and determine the user's eye activity.

TECHNICAL SKILL

- **Programming Languages:** Python, Go, C#, HTML, CSS, XAML, TypeScript, JavaScript, C++
- **Library & Framework:** TensorFlow, PyTorch, NumPy, Pandas, Docker, OpenCV
- **Tools:** Git, Kubernetes, Docker, Kubernetes, AWS S3, Bash, Conda, Unix/Linux, Node.js, PostgreSQL