

# Wengxi Li

---

## CONTACT INFORMATION

726 Serra Street  
Stanford, CA 94305  
+1 (734) 450-2112

✉ [wengxili@umich.edu](mailto:wengxili@umich.edu)  
🐙 [github.com/imerlwx](https://github.com/imerlwx)  
🌐 [imerlwx.github.io](https://imerlwx.github.io)

## RESEARCH INTERESTS

Connecting human-centered design, cognition, applied artificial intelligence and digital computing to improve people's learning capabilities, creativity, and productivity.

## EDUCATION

**University of Michigan**, Ann Arbor, MI  
Master of Science in *Electrical & Computer Engineering*, GPA: 4.00/4.00 April 2023

**University College London**, London, United Kingdom  
Master of Science with **Distinction** in *Medical Image Computing* August 2021

**Beijing Normal University**, Beijing, China  
Bachelor of Science in *Physics*, GPA: 3.60/4.00 June 2020

## PUBLICATIONS

**Wengxi Li**, Roy Pea, Nick Haber, Hari Subramonyam, "Tutorly: Turning Programming Videos Into Apprenticeship Learning Environments with LLMs." *ACM Symposium on User Interface Software and Technology (UIST'24)*. (Under review)

## RESEARCH EXPERIENCE

**Tutorly: Turning Programming Videos Into Apprenticeship Learning Environments with LLMs**  
Advisor: Prof. Hariharan Subramonyam *Stanford Institute for Human-Centered AI*

- **Practice Video Content by Learning Goals**
  - Designed a video segmentation algorithm that can use large language models (LLM) to segment programming tutorial videos into short clips based on user-input learning goals
  - Created an algorithm that could use LLM to extract the procedural and declarative knowledge from video segments and arrange cognitive apprentice methods for each segment
- **Domain-Specific Language for Conversation**
  - Deployed a domain-specific language (DSL) containing the action and interaction for each teaching method for producing prompts and parameters to generate active guidance
  - The DSL can be automatically generated and freely customized from videos on various topics (e.g., exploratory data analysis, machine learning, game development, etc)
- **Intelligent Conversational System and Evaluation**
  - Implemented a Chatbot as a JupyterLab extension, which leverages the DSL to provide adaptive direction and monitoring for students to learn the video content and acquire knowledge
  - Conducted technical evaluation and user study on the system. The accuracy of the generated dialog reached over 80% and participants' performance on tests increase from 55% to 74.5%

**Real-time Refocusing Algorithms for Acoustic Neurostimulations** [Paper] [Poster][Code]

Advisor: Dr. Antonio Stanziola, Prof. Bradley Treeby *Biomedical Ultrasound Group, UCL*

- **Geometric Algorithms Design and Simulation**
  - Applied the Time Reversal (TR) algorithm to simulate the ultrasonic focus movement during neurostimulation sessions and got the transmit phases of three fixed targets
  - Calculated the phase difference of the transmitted wave due to the head movements for the three targets using the Geometric Beamforming (GB) algorithm

- **Dataset Built and Deep Neural Network Training**
  - Simulated the phase difference for 50 different patients, 50 random targets for each patient, and 10 sets of transformations (including displacements and rotations) for each target
  - Implemented a neural network model that takes target position, head displacement, and rotation as input and outputs phase difference prediction
- **Results and conclusions**
  - Geometric method: The GB algorithm works only when the focal point is at the center and the near side, so neural network prediction is necessary
  - Deep neural network: A single model for all the skulls performs poorly, so training a specific model for each skull is more effective

COURSE PROJECTS    **ErgoSmart: Workers-AI Interaction for Ergonomic Solutions with a Vision Language Approach**  
 Advisor: Prof. Anhong Guo [\[Report\]](#) [\[Code\]](#)

- **Dataset Built and Model Fine Tune**
  - Created a dataset containing images of ten ergonomic problem categories, along with a script that maps each problem to a list of feasible solutions
  - Fine-tuned the Bootstrapping Language-Image Pre-training (BLIP) model, which takes images as input and outputs question titles, with an accuracy of 73.39%
- **Human-AI Interaction Design**
  - To achieve human-in-the-loop, a feedback mechanism is designed that puts the user's choices and the suggestions of ergonomics experts into practice
  - ErgoSmart can adjust the overall solution priority according to all users' preferences and provide a platform for communication with experts when no satisfactory solution is found

SERVICE    **Volunteer**  
 UIST 2023 San Francisco, CA (**Win the T-shirt Design Contest!**)

**Social Inverstigator**  
 Microscopic survey of China's real progress (Completed **150** sample families' household surveys)

SKILLS

- Back-end development & Statistical: Python (Flask, PyTorch), C++, MATLAB, R
- Front-end development: HTML, CSS, JavaScript, TypeScript, React, Vue.js

HONORS AND AWARDS	The First-Class Fellowships (Top 5%) of Beijing Normal University	2018
	The First-Class Competition Scholarship (Top 5%) of Beijing Normal University	2018
	Meritorious Winner (Top 7%) of Mathematical Contest in Modeling	2018