

# Wengxi Li

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## CONTACT INFORMATION

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[GitHub](#)  
[Website](#)

## RESEARCH INTERESTS

Utilize human-centered design and applied AI to design, build, and evaluate human-AI systems in education, accessibility, or any everyday activities to assist and augment human intelligence.

## EDUCATION

**University of Michigan**, Ann Arbor, MI

Master of Science in *Electrical & Computer Engineering*, GPA: 4.00/4.00 April 2023

- Coursework: Computer Vision, Computational Data Science & Machine Learning, Human-AI Interaction & Systems, SQL & Databases, Web Systems, Data Structure & Algorithms

**University College London**, London, United Kindom

Master of Science with **Distinction** in *Medical Image Computing* August 2021

- Coursework: Programming Foundations for Medical Image Analysis, Machine Learning in Medical Imaging, Medical Electronics and Control

**Beijing Normal University**, Beijing, China

Bachelor of Science in *Physics*, GPA: 3.60/4.00 June 2020

- Coursework: Foundation of Programming Language (Java), Linear Algebra, Solidworks, Data Analysis, Electrodynamics, Quantum Mechanics, Solid State Physics

## RESEARCH EXPERIENCE

**Collaborative Programming Learning: Transforming Programming Videos into Interactive Tutorials with LLMs** (in preparation)

Advisor: Prof. Hariharan Subramonyam

*Stanford Institute for Human-Centered AI*

- **Intelligent Tutor System**

- Implemented an LLM-based conversational intelligent tutor system (ITS) as a JupyterLab extension using TypeScript, React, and Python
- The ITS can take programming tutorial videos as input and select appropriate pedagogy among cognitive apprenticeship behaviors appropriate for students to acquire skills
- The ITS can provide guidance and assistance with video tutorials in multiple computer science areas such as exploratory data analysis, machine learning, etc.

**Real-time Refocusing Algorithms for Acoustic Neurostimulations**

[\[Paper\]](#) [\[Poster\]](#) [\[Code\]](#)

Advisor: Dr. Antonio Stanziola, Prof. Bradley Treeby

*Biomedical Ultrasound Group, UCL*

- **Traditional Algorithms Design and Simulations**

- 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 ten sets of transformations (including displacements and rotations) for each target
- Implemented a fully connected neural network that takes target position, head displacement and rotation as input and outputs phase difference prediction

- **Results and conclusions**

- Traditional 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    **Workers-AI Interaction for Ergonomic Solutions Applying a Vision Language Approach**  
 Advisor: Prof. Anhong Guo [\[Report\]](#) [\[Talk\]](#) [\[Code\]](#)

- **Dataset Built and Model Fine Tune**

- Made a dataset that has images within ten different categories (each has a specific ergonomic problem) and another script that maps each problem to a list of feasible solutions
- Fine-tuned a Bootstrapping Language-Image Pre-training (BLIP) model on Hugging Face that could take an image as input and output a problem caption, with an accuracy of 73.39%

- **Human-AI Interaction Design**

- To achieve human-in-the-loop, a feedback mechanism is designed that can put the user's choices and the suggestions of ergonomics experts into practice
- In the user interaction loop, the user can select the most helpful solution from a list of solutions. The solution list will prioritize the options with the highest number of options
- In the ergonomic expert's interaction cycle, if the user does not select any solution, the ergonomic expert will provide another solution to the list and notify the user

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)

COMPUTER SKILLS    • Statistical & Back-end development: Python (Flask, PyTorch), C++, MATLAB, R, Java  
 • Data visualization & 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