

# Wengxi Li

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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	<p><b>University of Michigan</b>, Ann Arbor, MI Master of Science in <i>Electrical &amp; Computer Engineering</i>, GPA: 4.00/4.00 April 2023</p> <ul style="list-style-type: none"><li>• Coursework: Computer Vision, Computational Data Science &amp; Machine Learning, Human-AI Interaction &amp; Systems, SQL &amp; Databases, Web Systems, Data Structure &amp; Algorithms</li></ul> <p><b>University College London</b>, London, United Kindom Master of Science with <b>Distinction</b> in <i>Medical Image Computing</i> August 2021</p> <ul style="list-style-type: none"><li>• Coursework: Programming Foundations for Medical Image Analysis, Machine Learning in Medical Imaging, Medical Electronics and Control</li></ul> <p><b>Beijing Normal University</b>, Beijing, China Bachelor of Science in <i>Physics</i>, GPA: 3.60/4.00 June 2020</p> <ul style="list-style-type: none"><li>• Coursework: Foundation of Programming Language (Java), Linear Algebra, Solidworks, Data Analysis, Electrodynamics, Quantum Mechanics, Solid State Physics</li></ul>	
RESEARCH EXPERIENCE	<p><b>Collaborative Programming Learning: Transforming Programming Videos into Interactive Tutorials with LLMs</b> (in preparation)</p> <p>Advisor: Prof. Hariharan Subramonyam <i>Stanford Institute for Human-Centered AI</i></p> <ul style="list-style-type: none"><li>• <b>Intelligent Tutor System</b><ul style="list-style-type: none"><li>• Implemented an LLM-based conversational intelligent tutor system (ITS) as a JupyterLab extension using TypeScript, React, and Python</li><li>• The ITS can take programming tutorial videos as input and select appropriate pedagogy among cognitive apprenticeship behaviors appropriate for students to acquire skills</li><li>• The ITS can provide guidance and assistance with video tutorials in multiple computer science areas such as exploratory data analysis, machine learning, etc.</li></ul></li></ul> <p><b>Real-time Refocusing Algorithms for Acoustic Neurostimulations</b> <a href="#">[Paper]</a> <a href="#">[Poster]</a> <a href="#">[Code]</a></p> <p>Advisor: Dr. Antonio Stanziola, Prof. Bradley Treeby <i>Biomedical Ultrasound Group, UCL</i></p> <ul style="list-style-type: none"><li>• <b>Traditional Algorithms Design and Simulations</b><ul style="list-style-type: none"><li>• Applied the Time Reversal (TR) algorithm to simulate the ultrasonic focus movement during neurostimulation sessions and got the transmit phases of three fixed targets</li><li>• Calculated the phase difference of the transmitted wave due to the head movements for the three targets using the Geometric Beamforming (GB) algorithm</li></ul></li><li>• <b>Dataset Built and Deep Neural Network Training</b><ul style="list-style-type: none"><li>• 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</li><li>• Implemented a fully connected neural network that takes target position, head displacement and rotation as input and outputs phase difference prediction</li></ul></li></ul>	

- **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