

# Hongwen Pu

Year 1, MEng Mathematical Computation

University College London

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## Research Interests Interested in

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- Mathematical foundations of machine learning
- AI model verification and safety
- Algorithmic ethics and policy
- Game-theoretic modelling of learning systems and educational fairness

## Publications

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Pu, H., Yi, K. (2024).

*A Comparative Analysis of EfficientNet and MobileNet Models' Performance on Limited Datasets: An Example of American Sign Language Alphabet Detection.*

**Highlights in Science, Engineering and Technology**, 94, 558–564.

DOI: 10.54097/yh5d3s04.

- Compared two popular lightweight CNN architectures - EfficientNet and MobileNet under limited-data constraints.
- Evaluated performance across 5, 10, and 20 training epochs on merged ASL datasets with sources taken from Kaggle
- Observed an early-epoch performance advantage of MobileNetV2 and systematic overfitting behaviour beyond 10 epochs.

*Accepted by the 2024 2nd International Conference on Computer, Machine Learning and Artificial Intelligence (CMLAI 2024); 8 citations (Google Scholar); 496 publisher-page downloads as of Nov 2025.*

## Research Experience

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### American Sign Language Spelling Recognition System and Educational Game (2024)

- Developed a MobileNet-based ASL alphabet recognition system using a low-code platform, Edge Impulse
- Deployed the trained model to a web-based interactive learning game through Edge Impulse SDK with Vue.js
- Achieved the highest overall grade among all project groups

Role: Model training, frontend development, deployment, final viva presentation.

### MVITA: Multi-Cultural Virtual Interview Agent (Hackathon Project, 2025)

- Developed a web-based virtual interview system for cross-cultural job preparation through GPT4.5 API and GPT4.5-based Anam SDK
- Implemented frontend using Vue.js and Anam SDK; backend using Python (Flask).
- Integrated GPT API for interview question generation in cultural contexts.

Role: Frontend development, SDK integration, prompt engineering.

## **Education**

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<b>University College London</b> MEng Mathematical Computation (Computer Science and Mathematics) <i>Currently at Year 1</i> <b>Relevant Coursework:</b> Analysis 1, Algebra 1 & 2, Mathematical Methods 1, Theory of Computation, Algorithms, Principles of Programming, OOP	London, UK 2025–Present
<b>Dulwich College (Singapore)</b> IB Diploma (Bilingual) HL: Mathematics AA (7), Computer Science (7), Physics (6)	Singapore, Singapore 2023–2025

## **Skills**

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Programming: Python, JavaScript/TypeScript, Vue.js, Node.js, Java, C, Haskell  
Tools: L<sup>A</sup>T<sub>E</sub>X, Git  
Languages: Chinese (Native), English (C2), Japanese (B1–B2)

## **Teaching Experience**

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<b>UCL Chinese Students and Scholar Association (CSSA)</b> Higher-Level Chinese Instructor, Department of Chinese Education	2025–Present
<ul style="list-style-type: none"><li>Designed and delivered advanced Chinese Language and Literature courses to second language students</li><li>Led close-reading and literary analysis on "Taipei People"</li><li>Integrated linguistic, cultural and historical perspectives into the course</li></ul>	
<b>Hangzhou DX Future</b> Founder & Curriculum Designer	2025–Present
<ul style="list-style-type: none"><li>Founded an educational initiative for senior secondary and university students in China</li><li>Designed interdisciplinary curriculum focused on global vision, critical thinking and research skills</li><li>Currently developing the "General Knowledge" module of the overall course</li></ul>	
<b>Dulwich College (Singapore)</b> HiMCM Coordinator & Mathematical Modelling Teaching Lead	2023–2025
<ul style="list-style-type: none"><li>Coordinated student's participation at DCSG in the HiMCM competition - a competition that tests students' ability to construct mathematical models and work collaboratively</li><li>Taught modelling methods, including AHP and TOPSIS, with the emphasis on conceptual understanding</li></ul>	