

## Junhao Song

Incoming Ph.D in CS student at Imperial College London (waiting Academic Technology Approval Scheme). And graduating MSc student in Applied Computational Science and Engineering (ACSE) at Imperial College London, United Kingdom. My research interests span multimodal, AI4Science, self-supervised learning, and large language models (LLMs). My passion for self-supervised learning and autoregressive model research was ignited by my involvement in EPSRC funded projects, inspiring me to apply AI methods to drive impactful research in energy and net-zero initiatives. I am also an avid participant in programming competitions, having secured third place in the Scottish SICSA algorithm challenge and ICPC Europe. junhao.song23@imperial.ac.uk — [Personal Pages](#) — [LinkedIn](#) — [Github](#) — [Google Scholar](#)

---

## RESEARCH AREAS

Optimisation, LLMs, self-supervised learning, AI4Science, Generative AI, multimodal, diffusion model.

---

## PUBLICATIONS

### Journal

- **Song, J.\***, Yuan, Y.\*, Chang, K., Xu, B., Xuan, J., and Pang, W.†, Exploring Public Attention in the Circular Economy through Topic Modelling with Twin Hyperparameter Optimisation, *Energy and AI*(Q1 IF=9.6), October 2024.

### Conference

- **Song, J.\***, Yuan, Y.\*, and Pang, W.†, SAIS: A Novel Bio-Inspired Artificial Immune System Based on Symbiotic Paradigm, *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO'24 Companion)*, July 2024.

### Selected Preprints

- Yang, J.\*, **Song, J.\***, Han, X.\*, Bi, Z.\*, Wang, T., Liang, C. X., Song, X., Zhang, Y., Niu, Q., Peng, B., et al., Feature Alignment and Representation Transfer in Knowledge Distillation for Large Language Models, *arXiv preprint*, April 2025.
- Tseng, C. Y., **Song, J.**, Bi, Z., Wang, T., Liang, C. X., and Liu, M., Active Learning Methods for Efficient Data Utilization and Model Performance Enhancement, *arXiv preprint*, April 2025.
- **Song, J.\***, Yang, J.\*, Jing, B.\*, Bi, Z.\*, Chen, K., Li, M., et al., Semantic Segmentation for Vision and Intelligence, *Artificial Intelligence eJournal SSRN preprint*, February 2025.
- **Song, J.\***, Zhang, Y.\*, Bi, Z.\*, Wang, T., Chen, K., Li, M., Niu, Q., Liu, J., et al., Generative Adversarial Networks Bridging Art and Machine Intelligence, *arXiv preprint*, February 2025.
- Hsieh, W.\*†, Bi, Z.\*, Jiang, C.\*, Liu, J., Peng, B., Zhang, S., Pan, X., Xu, J., Wang, J., Chen, K., Yin, C. H., Feng, P., Wen, Y., Jing, B., Ren, J., **Song, J.**, et al., A Comprehensive Guide to Explainable AI: From Classical Models to LLMs, *arXiv preprint*, December 2024.

### Under Review

- One AAAI2025 paper as the first author, one EMNLP2025 paper as the first author, one SIGGRAPH Asia 2025 paper as the second author. One NeurIPS 2025 paper as the fourth author is in progress.

---

## PROFESSIONAL SERVICES

Conference Reviewer: CHI 2025, ICLR 2025, ICCV 2025, AAAI 2026.

Journal Reviewer: Complex & Intelligent Systems.

---

## EDUCATION

**Imperial College London (ICL)**, London, United Kingdom

Doctor of Philosophy in Computing Research

Master of Science in Applied Computational Science and Engineering

July 2025? — December 2029?

September 2023 — December 2024

**Heriot-Watt University (HWU)**, Edinburgh, United Kingdom

Bachelor of Science (Hons) in Computer Science (Artificial Intelligence)

September 2020 — June 2023

Grade: First Class Honours

**China Agricultural University (CAU)**, Beijing, China (Transferred to HWU)

Bachelor of Science in Computer Science

September 2019 — June 2020

Grade: 3.85/4.0

## AWARDS

---

<b>1st place at ACSE in “The Deep Impact” MSc Project</b> Awarded by Imperial College London	November, 2023
<b>1st place at HWU, 3rd place of Scotland in SICSA Programming Challenge</b> Awarded by Scottish Informatics and Computer Science Alliance (SICSA)	January, 2023
<b>1st place at HWU, 4th place of Scotland in SICSA Programming Challenge</b> Awarded by Scottish Informatics and Computer Science Alliance (SICSA)	March, 2022
<b>Scholarship For Excellence: Ranked in the Top 1% of the Department</b> Awarded by China Agricultural University	May, 2020

## ACADEMIC EXPERIENCE

---

• Research Assistant for PRIME & CircularChem,	<i>February 2025 to May 2025</i>
• Research Assistant at ICL,	<i>June 2024 to November 2024</i>
• Research Programmer (Research Assistant) for DCEE,	<i>June 2023 to June 2024</i>
• Deep Learning Development Intern for Duotuo,	<i>August 2022 to November 2022</i>
• Research Programmer (Research Assistant) for RAIInS,	<i>March 2022 to June 2022</i>
• Website (Backend) Developer of UNV,	<i>August 2021 to October 2021</i>
• Intern of RAIInS,	<i>April 2021 to September 2021</i>
• Member of the HWU Algorithmic Competition Team,	<i>March 2021 to September 2022</i>
Member of HBUG Lab,	<i>September 2023 to Present</i>
Member of BCML Lab,	<i>September 2022 to Present</i>

## CORE SKILLS

---

- **Programming:** C, C++, Python, Java, R, C#.
- **Software:** Conda, L<sup>A</sup>T<sub>E</sub>X, Vim, Jupyter, Git, Slurm, Docker.

## CORE PROJECTS

---

- A generative automatic literature review framework based on Deepseek-R1 model.
- Optimising power grid distribution by genetic algorithm and AutoML.
- Vensim and web based system dynamic simulator.
- Protecting Minority Ethnic Communities Online (PRIME) project.
- AutoML analysis platform.
- Optimisation of mathematical benchmarks for symbiosis-based artificial immune systems.
- Comprehensive image and volume processing library ‘Canny’.
- Navigating public sentiment in the circular economy through topic modelling.
- COVID-19 data visualisation and analytics.

**Full project list, please check this URL.**