# He (Shawn) SUN

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## Education

**The University of Nottingham**                                                   **Nottingham, UK**
*Bsc Hons, Computer Science with Artificial Intelligence*                          *9/2023 - Present*

**The University of Oxford**                                                        **Oxford, UK**
*Summer Programme, Artificial Intelligence and Machine Learning, Top 3%*           *7/2022 - 8/2022*

**The University of Nottingham Ningbo China**                                       **Ningbo, China**
*Bsc Hons, Computer Science with Artificial Intelligence, 3.8/4.0 GPA*             *9/2021 - 6/2023*

- Zhenfund (China's premier angel investment fund) 13th ZhenResidence Entrepreneur Membership (24 start-ups/y)
- The 17th "Challenge Cup" Extracurricular Academic Science and Technology Contest National 1st Prize
- The International Mathematical Contest in Modeling (MCM) 2023 Meritorious Winner Top 7% (as Team Leader)
- The International Interdisciplinary Contest in Modeling (ICM) 2022 Meritorious Winner Top 7% (as Team Leader)
- China Association for Science and Technology 3rd Symposium on Sci and Eng Education Student Representative
- Zhejiang Provincial Scholarship
- Oxford Study Abroad Outstanding Scholarship
- UNNC Dean's Scholarship
- UNNC Outstanding Student Leader

## Experience

**Zhejiang University**                                                             **Remote**
*Co-Researcher · Biological Engineering · Numerical Simulation*                    *10/2023 - Present*

- Applied the Beer-Lambert law to model the spatial distribution of light intensity decay for conical micro-needles, optimizing the fitness to achieve an adaptive linear intensity gradient in 16 directions across the optogenetic array.
- Completed all programming aspects of the multi-luminescence optogenetic platform for wound-healing.

**FateAlgo Ltd**                                                                    **Remote**
*Founder and CEO · Product Manager · Generative AI Application*                    *4/2023 - Present*

- Analyzed the psychological utility of divination systems using word embedded clustering based on the Barnum effect.
- Built an AI agent offering Tarot reading and other divination services via knowledge-augmented language models.
- Spearheaded development of the iOS app and raised £50,000 in funding from the Li Dak Sum Innovation Foundation.

**The University of Nottingham Ningbo China × Vichnet Technology Co., Ltd**         **Ningbo, China**
*Deep Learning Engineering Assistant · Computer Vision · Digital Twin*             *1/2023 - 3/2023*

- Trained and fused multiple deep learning models, primarily DenseNets, ResNets, and VGGs, to combine saliency detection and image recognition for trash/garbage classification robots, achieving a test accuracy of 99.6%.
- Participated in deploying YOLOv5 to detect and track 32 categories of unsafe actions with occlusion in a factory.

**University of Science and Technology of China**                                   **Hefei, China**
*Research Assistant · Functional Quantum Programming Language "Quantric"*           *9/2022 - 12/2022*

- Participated in developing Quantric's hardware-decoupled compiler, including superposition state control flows and innovative compile-time quantum error correction algorithm with 20-50% fewer LOC/pm compared to IBM's Qiskit.
- Contributed to the design of a conversion algorithm between standard quantum circuits and ZX-diagrams.

**China Beacons Institute · AI and Optimization Research Group**                    **Ningbo, China**
*Research Assistant · Natural Language Processing · Machine Reading Comprehension*  *5/2022 - 8/2022*

- Investigated the feasibility of Bert-like models in MRC tasks on short-text data abstracted from pharmaceutical videos.
- Fine-tuned a Medical Q&A model for CSPC Group based on DuReader and validated it using Butylphenol videos.

## Technical Skills

**Programming Languages**: Python, MATLAB, Java, Haskell, C, HTML/CSS, JavaScript, MIPS, HDL
**Technologies/Frameworks**: PyTorch, CUDA, Django, scikit-learn, Flask, MySQL, Vue.js, JavaFX

## Publications

- *Yaping Li, Shang Chi, He Sun (2nd), Jiawei Kang, Zhihui Xiang, Yiying Qi, Wei Wang. Spatially Programmable Multi-Luminescence Optogenetic Platform for Wound-healing, 2024.* In Preparation · Nature Biotechnology

- *Ziyang Wang, He Sun (2nd), Tiecheng Zhang, Hongzhen Chen, Lejun Chen, Tianxiang Cui. Quantric: An Experimental State-Based Quantum Programming Language, 2024.* Under Review · IEEE Transactions on Quantum Engineering

## Personal/Syllabus Projects

- Pettheon: An iOS Mobile App Design Providing Therapy Pets for Hire · Human Computer Interaction · <u>Demo Video</u>
  *03/2024*

- Dark Web Marketplace Evidental Scraper for Leichester Police · Vue.js Front-End Development
  *12/2023 - Present*

- Snakee Maya : Wrath of the Feathered Serpent · Java Game Development (without Game Engine) · <u>Demo Video</u>
  *10/2023*

- *He SUN (1st), Junfeng ZHU, and Yipeng XU. Revive, Restore, Revitalize: An Eco-economic Methodology for Maasai Mara, 2023.* <u>arXiv:2309.07165</u> — The International Mathematical Contest in Modeling (MCM) contest paper

- Personal poetry anthology website · Website Building · <u>hesunpoetry.com</u>
  *11/2022*

- *He SUN (1st), Junfeng ZHU, and Yipeng XU. Research on the Impact of Asteroid Mining on Global Equity, 2022.* <u>arXiv:2211.02023</u> — The International Interdisciplinary Contest in Modeling (ICM) contest paper, notably featured on <u>Universe Today</u>, an astronomy tech media outlet from Canada

## Natual Languages

**English**: IELTS 7.5
**Mandarin**: native language.

## Extracurricular

**Nottingham Alliance of Sports Archery (China Campus)** <div align="right">**Ningbo, China**</div>
*Co-Founder and Vice-President · 2022 Best Sports Club Award* <div align="right">*9/2021 - 9/2023*</div>
- Initiated a reward strategy in collaboration with 16 local restaurants and expanded the club members to 300 in a year.
- Organized two themed archery events and built a multi-level prediction model to ensure dynamic prize management.