

# HAOYU LU

✉ haoyulu1022@hotmail.com · ☎ (+86) 150-2558-0366 · 🌐 HaoyuLu1022

## 🎓 EDUCATION

---

**Beijing Normal University**, Beijing, China 09/2020 – 07/2024 (expected)

B.S. in Computer Science and Technology, School of Artificial Intelligence

**GPA:** 3.8/4.0, **Rank:** 5/53

**Relevant Courses** (selected):

*Compulsory:* Data Structure (95), Principles of Computer Composition (95), Algorithm Design and Analysis (94), Probability Theory and Stochastic Process (93)

*Optional:* Introduction to Machine Learning (97), Multimedia Technology (93), Introduction to Big Data (95), Programming in JAVA (95)

## 👤 EXPERIENCE

---

**Natural Hazards Remote Sensing Lab**, Peking University 04/2023 – Present

*Research Assistant* Advised by: Prof. Xie Hu

- Project **Domain Adaptive Semantic Segmentation of Multi-annual Retrogressive Thaw Slumps** (*paper in submission*) was chosen as one of the 2023 Emerging Engineering Interdisciplinary Projects, Peking University, co-advised by Prof. Xie Hu and Prof. Shanghang Zhang
  - Implemented Deeplab V3+ segmentation model integrated with gradient reversal layer and domain discriminator for domain adaptation
  - Achieved an F1 score of 0.829 and a recall rate of 0.934, outperforming CycleGAN and fine-tuning
- Currently working on fine-tuning Segment Anything Model (SAM) for segmentation tasks in remote sensing images

**Key Laboratory of Beam Technology of Ministry of Education**,

Beijing Normal University

09/2022 – Present

*Research Assistant* Advised by: Prof. Jianyong Jiang

- Exploring the combination of computer science and medical imaging techniques, especially in fields of Positron Emission Tomography (PET) and Compton imaging
- Implemented models for medical image classification and segmentation from U-net to recent SAM, having gained insights into both the imaging principle and related downstream tasks
- Currently working on physics-based imaging correction using methods of deep learning and reinforcement learning-aided image reconstruction

**Cannabis “Vaccaccine”**, Beijing Normal University

02/2022 – 11/2022

*Leader of Modelling Group* International Genetically Engineered Machine Competition

- Established mathematical models to describe the system of biochemical reactions of Cannabis “Vaccaccine” based on differential equations, stochastic process and biochemical kinetics, etc.
- Implemented the models and simulated to explore the feasibility and efficiency of our biological pathway
- Discussed with wet-lab fellows to improve experiment design according to simulation results

**Stress Detection Platform**

**Based on Heart Rate Variability**, Beijing Normal University

06/2021 – 05/2022

*Member* Advised by: Prof. Hua Huang

- Chosen as one of 2021 Beijing Undergraduate Research and Innovation Projects
- Implemented denoising and smoothing algorithms to preprocess Photoplethysmography (PPG) signals sampled from a custom wristband, and calculated parameters related to HRV level in time and frequency domain
- Implemented deep learning based classification algorithm on preprocessed, labeled data, achieving great accuracy of 96.48%

## HONORS AND AWARDS

---

<i>Silver Medal</i> , Internationally Genetically Engineered Machine Competition (Modelling)	11/2022
<i>1<sup>st</sup> Prize Scholarship</i> (10%), Beijing Normal University	10/2021, 10/2022
<i>1<sup>st</sup> Prize</i> , National English Contest for College Students	10/2022
<i>Excellent Student Cadre</i> , Beijing Normal University	10/2022
<i>2<sup>nd</sup> Prize</i> , Beijing College Students' 'Internet+' Innovation and Entrepreneurship Competition	08/2022
<i>Honorable Mention</i> , Interdisciplinary Contest In Modelling	05/2022
<i>Merit Student</i> , Beijing Normal University	10/2021

## PUBLICATIONS

---

Jiang, Jianyong, Jianlang Hua, Haihao Wang, Ziquan Yuan, Yuan Meng, **Haoyu Lu**, Steven Liu, Yunlai Chen, and Yuan-Chuan Tai. "A virtual-pinhole PET device for improving contrast recovery and enhancing lesion detectability of a one-meter-long PET scanner: a simulation study." *Physics in Medicine and Biology* (2023).

### Under Review

Lin, Yiling, Xie Hu, **Haoyu Lu**, Shanghang Zhang, Fujun Niu, Jifu Liu and Yunhuai Liu. "Domain adaptive semantic segmentation of multi-annual retrogressive thaw slumps." (2023)

## ACTIVITIES

---

### **Academic Contest Department,**

School of Artificial Intelligence, Beijing Normal University

07/2021 – 07/2022

*Leader*

- Helped organize various school-level contests and academic events
- Hosted seminars with veteran engineers in industry, prestigious professors and high-level contestants in related competitions like ACM-ICPC
- Organized interesting, rewarding activities aiming at promoting professional growth, e.g., daily coding

## SKILLS

---

- Development: proficient in
  - Programming languages: C/C++, Python and MATLAB
  - Deep learning frameworks: PyTorch and TensorFlow
  - Development environment configuration on Linux platforms
- Languages: English - Fluent (TOEFL: 108, CET-6: 605), Mandarin - Native