

Hufei Duan

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IELTS: 6.5

Tsinghua Shenzhen International Graduate School, Tsinghua University, Shenzhen 518000, China

Education

Tsinghua University, Beijing, China **2020.09-2023.06 (Expected)**

Master in Electronic Information | GPA: 3.78/4.0 (top 5%)

Supervisor: Prof. Yonghong He and Prof. Tian Guan

Technical University of Munich, Munich, Germany **2020.08**

Exchange Student in Artificial Intelligence

Zhengzhou University, Zhengzhou, China **2016.09-2020.06**

Bachelor in Biomedical Engineering | GPA: 3.71/4.0 (top 1%)

Previous Work Experience

The First Affiliated Hospital, Sun Yat-sen University, Guangzhou, China **2021.05-2022.06**

AI Research Intern in Department of Pathology

Supervisor: Prof. Anjia Han and Prof. Huijuan Shi

Robot Perception Lab, Zhengzhou, China **2018.03-2018.09**

Supervisor: Prof. Xiaobo Mao and Academician D.H.Owens

Research Interest and Experience

Research Interest: Medical Image Analysis, Deep Learning

An Annotation-Efficient Regional Segmentation of Breast Cancer Image **2021.12-Present**

- Responsible for *experimental design, analysis of results and software development*.
- Proposed a universal label-efficient method in image segmentation. It achieved good results in three datasets.

A Novel Transformer-based Model for Breast Cancer Classification **2022.02-Present**

- Responsible for *code writing, experimental design, analysis of results and paper writing*.
- Used multi-domain features and mixed attention mechanism. It performed better than classic models.

An AI-based High-Resolution Scoring System for Breast Cancer **2021.05-2021.10**

- Responsible for data collection, tools development and performing experiments.
- Proposed a self-supervised and multi-scale model to solved a clinic issue. A computer-assisted software was made.

An AI-based Traditional Chinese Medicine Pulse Analysis System **2019.12-2020.05**

- As *Project Leader*. Responsible for *data acquisition, experimental design and code writing*.
- Win the third prize (6/70) in the competition hosted by Tsinghua University and Technical University of Munich.

Human Lower Extremity Motion Assessment System **2018.09-2019.05**

- Responsible for *signal processing, GUI design and patent writing*.
- Win the Second prize (provincial level) in the National Student Challenge Cup Competition.

Publications

Papers

Hufei Duan, Hui Yan, Tian Guan, et al. Fourier ViT: A Multi-scale Vision Transformer with Fourier Transform

for Histopathological Image Classification. In *CACRE 2022*.

Yiqing Liu, **Hufei Duan**, et al. Using Sparse Patches Annotation for Tumor Segmentation in Histopathological Images. In *Sensors*.

Yiqing Liu, **Hufei Duan**, Yuxin Ni, et al. A Domain Adaptive and Label-efficient Deep Learning Method for Ki-67 Scoring in Infiltrative Breast Ductal Carcinoma Cells. In *ITNLP 2021*.

Hufei Duan, Yiqing Liu, Shuting Liu, et al. An AI-based High-Resolution Scoring System for Breast Cancer. in *Computer methods and programs* (IF:5.4). (Under Review)

10 Chinese Patents

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| AI Traditional Chinese Medicine Pulse Diagnosis System <i>the First Author</i> | No. 9054049 |
| A Multi-functional Smart Insole <i>the Second Author</i> (first author in students) | No. CN109350052A |
| A Wearable Tai Chi Evaluation System <i>the Second Author</i> (first author in students) | No. CN111957024A |
| Human Jumping Evaluation and Training System <i>the Third Author</i> | No. CN109260647A |

Honors and Awards

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| [International level] TIE ² -Deep Tech Accelerator Program 3rd Prize Winner | 2021.11 |
| [International level] Innovation & Entrepreneurship Program Excellent Completion | 2021.03 |
| [National level] National Encouragement Scholarships (top 2%) | 2016-2019 |
| [National level] National innovation training program Excellent Completion | 2018.04 |
| [Provincial level] The 6th Tsinghua Alumni Tri-Creation Contest Outstanding Award | 2021.03 |
| [Provincial level] Excellent Graduate of Henan Province | 2020.06 |
| [Provincial level] Excellent Student Leader of Zhengzhou City | 2016.03 |
| [School level] Outstanding Officer of Tsinghua University Graduate Student Association | 2021.01 |
| [School level] First Class Scholarship in Tsinghua University (top 5%) | 2021.09 |
| [School level] Lin Feng Scholarship (top 1%) | 2018.12 |

Relevant Courses

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| Medical Image Processing | Deep Learning | Machine Learning for big data |
| An Introduction to Medicine | Medical Device Practice | Medical Physics and Therapy |

Extracurricular Activities

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| Tsinghua & Munich Technology Innovation Competition Team Leader | 2021.11 |
| • Our team completed and present an AI Assisted Diagnosis software, and make many foreign friends. | |
| Tsinghua Alumni Tri-Creation Contest Technical Leader | 2021.03 |
| • Our team entered the finals of Beijing Tianjin Hebei and North America zone. | |
| School Table Tennis and Tai Chi Exercise Organizer | 2019.10 |
| • Organizing physical exercise activities to help keep fit, which is well welcomed among students. | |
| Reception of foreign experts and scholars Volunteer Leader | 2017.05-2018.09 |
| • Accompanying Prof. Owens, the academican of the Royal Academy, to visit the Terracotta Warriors. | |

Others

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| Leadership Monitor of the Class | 2016-2020 |
| • Organizing large activities efficiently. Leading the class to win the honorary title of provincial outstanding class. | |
| Skills | |
| • Python, Matlab, Visual C#, C++, Java and Linux Operation. | |
| Hobbies | |
| • Swimming, Calligraphy, Table Tennis, Chinese Kongfu, and Stage Performances. | |