

# Hufei Duan

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**IELTS:** 6.5

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

## Education

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**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

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**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

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### 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** **2021.05-2021.08**

- 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

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### Papers

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)

**Hufei Duan**, Hui Yan, Tian Guan, et al. A Details-Captured Model for Breast Cancer. In *PRCV*. (Submitted)

Yiqing Liu, **Hufei Duan**, et al. IHC Scoring with H&E-Stained-Images-Labeled-Only Dataset. (Writing)

Yiqing Liu, **Hufei Duan**, Qiming et al. A Universal Label-Efficient Segmentation Method. (Writing)

## Chinese Patents

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 <sup>2</sup> -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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<b>Tsinghua &amp; Munich Technology Innovation Competition</b>   Team Leader	2021.11
• Our team completed and present an AI Assisted Diagnosis software, and make many foreign friends.	
<b>Tsinghua Alumni Tri-Creation Contest</b>   Technical Leader	2021.03
• Our team entered the finals of Beijing Tianjin Hebei and North America zone.	
<b>School Table Tennis and Tai Chi Exercise</b>   Organizer	2019.10
• Organizing physical exercise activities to help keep fit, which is well welcomed among students.	
<b>Reception of foreign experts and scholars</b>   Volunteer Leader	2017.05-2018.09
• Accompanying Prof. Owens, the academican of the Royal Academy, to visit the Terracotta Warriors.	
• Accompanying Prof. Eric from the UK and Prof. Krzysztof from Poland to attend the conference.	

## Others

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<b>Leadership</b>   Student Union Committee Member	2020-Present
<b>Leadership</b>   Class Monitor	2016-2020
• Organizing large activities efficiently. Leading the class to win the honorary title of provincial outstanding class.	
• Obtaining the praise of the dean and teachers. Winning the unanimous praise of all students in our class.	

### Skills

- Skilled in Python, Matlab, Visual C# programming and Linux operation. Can use C++, Java and Javascript.

### Hobbies

- Enjoy Swimming, Calligraphy, Table Tennis, Chinese Kongfu, and Stage Performances.