Zhao Xiaoyu 赵晓宇

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Education

09.2018 - 07.2022 **Bachelor/Master (Biomedical Engineering) Imperial College London — Supervisor: Prof Molly Stevens**
- 1st class honours degree—Dean's list (Top 10% of the cohort)—Converted GPA: 4.0/4.0
- Received UROP Summer Research Fellowship Award three times:
  Summer 2022: Received £4,466.00 for Raman characterisation of 3D multicellular brain organoids
  Summer 2021: Received £3,906.00 for Quantitative microRaman high content biomolecular profiling of 3D tissue constructs
  Summer 2020: Received £2,690.37 for Computational signal processing algorithms for Raman chemical imaging of bioengineered tissue constructs

09.2014 - 06.2017 **GCE A-Level Wuxi No.1 International High School**
- President of the Student Union. League Secretary of the school. Year 10-12: Top 1 in the school
- GCE A-Level (Mathematics 96A*, Physics 95A*, Chemistry 92A*, Economics 92 A*, Further Mathematics 80A, IB English 86A), IGCSE (5 A*s, 1A)

Research Experience

09.2022 - 07.2023 **PhD Candidate** at Department of Health Sciences and Technology, ETH Zurich
- Supervisor: Professor Marcy Zenobi-Wong, Dr. Naresh Kumar
- Developed advanced bio-inks and novel extrusion systems for 3D bio-printing
- Cultured human tissue-engineered cartilage with compressive modulus above 1MPa
- Developed a 3D super-multiplexed label-free live-cell imaging method which enables the characterisation of more than ten bimolecular components simultaneously

12.2019 - 09.2022 **Research student** at the Stevens Group, Imperial College London **(Awarded Research Bursary)**
- Supervisor: Professor Molly Stevens
- Developed a preprocessing algorithm for ultra-quantitative Raman chemical imaging of three dimensional cell cultures, and a standardised method for chemometric phenotyping of biospecimens
- Developed a method for Raman characterisation of three dimensional multicellular human stem cell organoids, and a user-friendly Raman chemical imaging interface in Matlab
- Utilised 3D printing techniques to construct highly vascularised cardiac tissue based on channel-templating bioink, currently aiming to induce a complete interconnected vascularisation between the perfusable macro-vessels and the dense micro-vessels through stimulation of angiogenesis

10.2020 - 04.2022 **Research student** at the E.M. Drakakis Lab, Imperial College London
- Supervisor: Professor Emm Mic Drakakis
- Designed a cancerscope which enables real-time diagnostics during surgery for ovarian cancer, and removal of microscopic ovarian cancer residues which cannot be detected by the human eye
- Designed and made a cancerscope prototype — Boston Scientific has shown interest in our device, modification of the device is currently being made for use in clinical trials
- Conference paper has been accepted for presentation at the 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (see Publication)

Work Experience

05.2023 - Current **Co-Founder and CEO** at SuperVision Medicine: Website (www.supervisionmedicine.com)
- SuperVision Medicine is an online Raman data analysis platform developed by a group of clinicians, medical imaging experts, and AI enthusiasts, aiming to bring transformative changes to the biological imaging field
- Founded SuperVision Medicine, leading a global team in developing innovative ultra-quantitative Raman imaging software for precise 3D analysis of bio-molecular components and drugs

06.2020 - 12.2022 **Assistant Vice President** at Starry Fir Fund Capital Personal Website
- Developed a software product that uses machine learning to monitor teenagers' mental health problem
- Managed the R&D team at SoulMate, which was invested by Starry Fir Fund Capital
- Successfully exited in 2022

02.2022 - 10.2022 **R&D Intern** at HyperVision Surgical, London Website Personal Website
National Health Service Honorary Appointment at Guy's and St Thomas' Hospital
Kings College London Honorary Appointment
- Shadowing surgery and interaction with surgeons/clinicians to develop a new imaging technology for real-time intraoperative tissue characterisation. The goal is to develop a system for real-time intraoperative blood perfusion assessment to improve surgical precision and patient safety during colorectal surgery.
- Developed a hyperspectral imaging spectroscopy system for optimal intraoperative system development

- Developing a system that can equip clinicians with advanced computer-assisted tissue analysis for improved surgical precision and patient safety
- Ran an ex-vivo pig study at St Mark's Hospital, an in-patient clinical colorectal surgery study (9 patients), and an in-patient clinical neurosurgery study (81 patients) at King's College Hospital

06.2022 - Present **Mentor and Co-founder** of FuSSO (Future Science Scholar Organisation) Personal Website
- Organised a community of 1500 international high school students in China and US
- Contact potential speakers and mentors from top universities and arrange academic seminars
- Established an online self-paced course platform offering a variety of pre-collage and academic programs

06.2022 - Present **Organisation Committee Member of** ETH Zurich 6th Raman Workshop
- Organised a 3-day Raman workshop with more than 150 attendees at ETH Zurich
- Invited and organised 20 well-known researchers in the field of Raman microscopy to deliver talks

01.2023 - Present **Educational Influencer on Social Media**
- 9450+ followers on TheLittleRedBook "Katherina Zhao"
- 6630+ followers on Bilibili " KatherineZXYY"
- Share personal experience in academic study
- Has a fan club ("Study With Katherina") of 60+ PhD students all over the world

06.2019 - 10.2019 **Medical Intern** at Wuxi Tongren International Rehabilitation Hospital, China
- Supervisor: Professor Peng Huang
- Learned the mechanisms and the use of upper and lower limb rehabilitation training robot and gait analyser
- Studied the rehabilitation methods for brain injury, bone joint and sports injury
- Studied on regional homogeneity and whole brain function connectivity in subjects with mild cognitive impairment, processed RS-fMRI scans from 54 patients (see Publication)

06.2018 - 08.2018 **Technology Intern at** Wuxi Transport Petroleum Products Co.Ltd, China Ship-building Industry Group
- Supervisor: Chairman Bingkun Wu
- Conducted petroleum industry research and learned chemical engineering approaches in oil purification
- Attended board meetings, learned business analysing methods and strategy development approaches

03.2020 - 04.2020 **Spring Intern** at RJ.P. Morgan Chase & Co. 2020—Finance for Non-Finance Programme
- Learned financial market product fundamentals, global banking strategy and financial management
- Learned advanced Excel operation, capital markets and valuation fundamentals

08.2018 - 10.2018 **Technology Assistant** at Wuxi Guangqiang Bearing Co.Ltd
- Supervisor: CEO Guangqiang Zhang
- Did research on the development of various mechanical solutions for the bearing systems
- Worked on the design of different kinds of bearing systems

10.2018 - 09.2022 **President Ambassador** of Imperial College London
- Lead official campus tours, represent the College at open days, give student life talks at schools, meet and greet delegations of international visitors

10.2015 - 07.2018 **Founder of Technology Club**
- Cooperated with JiangNan University and organised scientific boot camps related to lactic acid bacteria and yogurt production
- Lead research and taught classes on the application of advanced 3-D printing of human tissues and organs
- Initiated and managed workshops for Arduino programme learning and practicing

Publication

Co-author of "Quantitative chemometric phenotyping of three-dimensional liver organoids by Raman spectral imaging" Cell Reports Methods. https://doi.org/10.1016/j.crmeth.2023.100440

2nd-author of "Hypoconnectivity within the cingulo-opercular network in Patients With Mild Cognitive Impairment in Chinese Communities" paper accepted in International Journal of Geriatric Psychiatry. Article ID: GPS5979, **DOI:** 10.1002/gps.5979

2nd-author of "Study on Regional Homogeneity and Whole Brain Function Connectivity in Subjects with Mild Cognitive Impairment" paper number: BE2017624, published in "Chinese Journal of Geriatrics | Chin J Geriatr" in August 2021, Vol.40, No.8, DOI: 10.3760/cma.j.issn.0254-9026.2021.08.013

Co-author of "The Research of Psychiatric clinicians Mental Health and coping styles in Different grades of Hospitals" paper number: 260303, published in "China Journal of Health Psychology" in 2018, volume 26, 3rd issue, DOI: 10.13342/j.cnki.cjhp.2018.03.022

1st-author of "An Endoscope-catheter device for the detection of ovarian cancer using biopotentials" paper number: 2177, for presentation at the 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society. October 31-November 4, 2021

1st-author of "Raman spectroscopy for characterising human tissue-engineered cartilage" abstract number: 108, Reg ID #155, for presentation at the 2023 Termis-AP conference. October 16-19, 2023 Hong Kong, New Vista of Tissue Engineering & Regenerative Medicine, accepted

2nd-author of "Unravelling the interplay of matrix cues in epithelial-to-mesenchymal transition: insights from a 3D model combining native and artificial ECM" paper in preparation with Prof. Molly Stevens and Prof. Cristina Barrias

1st-author of "Super-multiplexed ultra-quantitative Raman imaging for 3D characterisation of biological sample" paper number: BO509-21, for presentation at the Advanced Chemical Microscopy for Life Science and Translational Medicine, SPIE (The International Society for Optics and Photonics), accepted

Patent

Developed an inflatable cushion and a multifunctional sickbed dining board, which have applied for utility model patents in the State Intellectual Property Office of The P.R.C. (cn 201720448290.5 website: www2.soopat.com/Patent/201720448290)

Awards

International Student Representative at Chinese Global Youth Summit, CYGS, China	08.2023
National Health Service Honorary Appointment at Guy's and St Thomas' Hospital	06.2022
Honorary Appointment at Kings College London	05.2022
Imperial College London MedTech Entrepreneurship Scholars	11.2021
2nd Prize in "Wuxi Integrated Empowerment and Entrepreneurial Innovation Competition"	11.2023
Young Green Tech Entrepreneur of The Year 2023	09.2023
2023 Global Youth Green Innovation Summit - Young Green Tech Winner of The Year 2023	09.2023
SheLovesTech 2023 Top 10 in Mainland China (World's Largest Startup Competition for Women and Technology)	10.2023
2nd Prize in "The 7th Suzhou - ZhangJiaGang Global Innovation Competition" (RMB 20,000)	11.2023
1st Prize in "Win in TaiCang" Global Innovation Competition (RMB 20,000)	11.2023
3rd Prize in "2023 Hainan Free Trade Port Women's innovation and entrepreneurship competition" (RMB 20,000)	08.2023
HiCOOL Global Entrepreneur Summit-Hong Kong Innovation Gateway International Startup Pitch-Most Innovative Award	09.2023
SheShapes Technology Fellow, Global Shapers Community, World Economic Forum	01.2021
SheShapes Academia Fellow, Global Shapers Community, World Economic Forum	10.2021
UROP Summer Research Fellowship (£11,062.37) Received three times 06.2020, 06.2021, and	06.2022
Dean's list in Bioengineering Department of Imperial College London (ranked top 10%)	10.2019
Securities Education Certificate (Distinction) by Imperial College Finance Society	10.2019
Academic Distinction Award (Straight As in CIE AS/L Exams)	09.2017
1st Tier in "Wuxi CCTV Star Of Outlook English Talent Competition"	2017
Silver Award in Royal Society of Chemistry Rising Star China Chemistry Challenge	2016-2017
Merit Student (Top 5 of students in each year group)	2014-2017
First Prize in "WEB CUP--The 17th Wuxi School Students English Speech Competition"	2014
Hypatia Math Contest Silver Certificate, University of Waterloo	05.2017
Senior Math Challenge, silver certificate, UK Math Trust	10.2016

Skills

1. Coding (C++, C, Matlab, Python)
2. Raman spectral data processing and analysis
3. WITec software
4. Raman imaging microscope
5. 3D printing
6. Tissue Engineering
7. OrCAD PCB design, SolidWorks
6. CNN-Convolutional Neural Network (Matlab)
7. Image processing and analysis (png image)
8. Marketing
9. Education
10. Public speaking