SHENGYANG ZHUANG

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(Last updated: October 18, 2023.)

EDUCATION

Master of Research, Medical Robotics, Imperial College London, UK   09 2023 – 09 2024
With full scholarships (Recipient of Chiang Chen Overseas Fellowship 2023/2024[1] and Imperial bursary[2]).

Bachelor of Engineering, Automation, Harbin Institute of Technology, China   08 2019 – 06 2023
GPA: 91.28/100 (154 credits). With highest honor: Top Ten Outstanding Graduates[3]. Bachelor's thesis finished at ETH Zurich.

Invited visiting student, ETH Zurich, Switzerland   06 2022 – 05 2023
GPA: 5.8/6.0 (48 ECTS). Supervisor: Prof. Daniel Ahmed. Bachelor's thesis title: "SonoPrint: acoustically-assisted volumetric 3D printing with feedback optimization."

Exchange student, KTH Royal Institute of Technology, Sweden   01 2022 – 05 2022
GPA: 4.4/5.0 (30 ECTS). Took master courses regarding advanced control theory, embedded control systems and time series analysis.

EXPERIENCE

Research postgraduate, Imperial College London, UK   09 2023 – 09 2024
- Studying robotics, imaging and sensing. Conducting research at the Hamlyn Centre.
- Working on a group project titled "Soft Optical Tactile Sensor to Localise and Assess Colorectal Tumours". Using deep learning methods. Group leader of five, supervised by Dr. James Avery.
- Will work on an eight-month individual project regarding robotics and AI.

Research assistant, ETH Zurich, Switzerland   06 2022 – 05 2023
- Worked on bachelor's thesis at Acoustic Robotics Systems Lab supervised by Prof. Daniel Ahmed.
- Explored acoustically- and magnetically-assisted volumetric 3D printing (V3D) technology with feedback optimization through hands-on laboratory work and simulation.
- Developed novel V3D software based on python PyQt5.

Teaching assistant, Harbin Institute of Technology, China   08 2021 – 12 2021
- Assisted Prof. Jun Li in the course "Mathematical principles in college physics".
- Compiled three chapters of the handouts and lecture slices. Lectured for 50+ students.

Visiting fellow, Global Youth Leadership Academy at UN ITCILO, remotely   06 2021 – 08 2021
- Worked with former UN senior official Dr. Liangrong Zu.
- Coached 500+ global students. Produced program videos. Chief planner and director of the closing ceremony.

PUBLICATIONS

[1] P. Agrawal, **S. Zhuang**, S. Dreher, S. Mitter, D. Ahmed, SonoPrint: Acoustically-Assisted Volumetric 3D Printing for Composites, Preprint at bioRXiv https://doi.org/10.1101/2023.08.07.552292. (under review Advanced Materials).

Scholarships and Awards

- Chiang Chen Overseas Fellowship 2023/2024, $50000.   07 2023
- Hamlyn Bursary for Imperial postgraduates, £3000.   06 2023
- Qiming scholarship of HIT, awarded for Top 10% marks in the year, ¥7000.   10 2021
- First Prize National Mathematical Modeling Competition, provincial   10 2021
- Top Ten Outstanding Graduates of HIT, ¥10000.   12 2021
- 613 scholarship of HIT, awarded for Top 5% marks in the year, ¥8000.   10 2020
- First Prize National Mathematics Competition, provincial.   10 2020

Skills

- **Laboratory skills**: 3D printing, microscopes, soldering, simulation and other hands-on experiments
- **Computing**: Matlab, Python, LaTeX, C++, HTML, Solidworks. Arduino, R, COMSOL
- **Design**: Adobe Illustrator/ Photoshop/ Premiere Pro/ After Effect/ Media Encoder
- **Sports**: surf, ski, basketball (member of class team), sprint (member of department team 4×100 relay)
- **Music**: Saxophone since 2012
- **Languages**: Chinese (native), Hokkien (native), English (IELTS-C1), German (limited)

Selected Projects

Software design for state-of-the-art volumetric 3D printer   03 2023 – 05 2023
- Created a user-friendly python software with all functions needed for volumetric 3D printer. This included projection control, 3D object tomographic scanning, incorporating various image optimization algorithms, etc.

SonoPrint: acoustically-assisted volumetric 3D printing with feedback   08 2022 – 03 2023
- Optimized an acoustically-assisted volumetric 3D printer with an additional visual feedback system.
- Conducted experiments regarding 3D printing, piezoelectric transducers, microscope, soldering and so on.
- Derived equations based on physical principles to theoretically prove experiments. The study was concluded in the supplementary information of the paper published.

Implementation of the pre-defined behaviors of differential-drive robot   01 2022 – 03 2022
- Derived robot kinematics model mathematically. Designed & optimized controllers through simulation. Conducted experiments to assess the performance.

Zebrafish object detection for intelligent micromanipulation robotics systems 07 2021 – 08 2021
- Utilizing computer vision and image processing methods to detect zebrafish from the microscope.

References available on request

Prof. Daniel Ahmed, dahmed@ethz.ch, ETH Zurich, Switzerland

Assistant professor of acoustic robotics for life sciences and healthcare, P.I. of Acoustic Robotics Systems Lab.

Prof. Huijun Gao, hjgao@hit.edu.cn, Harbin Institute of Technology, China

Chair Professor, IEEE Fellow, Member of Academia Europaea, Director of Research Institute of Intelligent Control and Systems.

Dr. Liangrong Zu, lrzu@ungyla.org, Former Senior United Nations Official, Turing, Italy

Founder and President of Global Youth Leadership Academy (GYLA), Founder of Taoist Leadership Academy for Sustainability & Excellence (T-LASE)

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[1] In 2023, only 9 students in Mainland China received the Chiang Chen Overseas Fellowship, which supports top engineering graduates to pursue postgraduate studies in the Top Ten US or selected European institutions. The selection process begins with 15 leading engineering colleges in China nominating two students each. A preliminary panel narrows it down to 20 finalists, from whom about 11 recipients are chosen by the final panel.

[2] This limited scholarship is only provided to exceptional applicants who achieve academic excellence in their diploma programme. The scholarship is provided by Hamlyn Centre and Institute of Global Health Innovation.

[3] This annual award at HIT is given to outstanding students regardless of their academic level (bachelor, master, or PhD). Each department and Shenzhen, Weihai campus nominate only one student based on their academic achievements and involvement in activities. The university committee then selects 10 finalists through a symposium presentation process.