Tong Chen

- **Email:** tche2095@uni.sydney.edu.au
- **Cell Phone:** (+61) 0412424624
- **Address:** 1101/2 Mary Street, Burwood, Sydney, Australia

Research Interests

- Brain Decoding
- Medical Imaging
- Neuroimaging

Education Background

School of Optics and Photonics, Beijing Institute of Technology, China 2018.09-2021.06

- **Degree & Major:** Opto-Electronics Information Science and Engineering
- **GPA:3.0/4.0**
- **Advisor:** Associate Prof. Yi Tang, UV Lab of Ministry of Education for Photoelectronic Imaging Technology and System

School of Optics and Photonics,
Beijing Information Science and Technology University, China 2021.09-2022.07

- **Degree & Major:** Bachelor of Engineering, Opto-Electronics Information Science and Engineering
- **GPA: 83.1/100**
- **Advisor:** Prof. Yang Liu, Dean of Opto-Electronics Engineering

School of Electronic Engineering,
The University of Sydney, Sydney 2023.3-

- **Degree & Major:** Master of Philosophy (Engineering), Faculty of Engineering
- **Advisor:** Associate Prof. Luping Zhou, Associate Prof. Dong Yuan
- **Research Topic:** Brain Decoding and AI Generative Models

Internship & Work Experience

ELEC5622 Tutorial, The University of Sydney, Sydney, Australia 2023.8-Present

- **Tutor, Advisor: Associate Prof.** *Luping Zhou*
- **ELEC5622: Signals, Software and Health:** This course is related to health informatics and focuses on introducing the acquisition, processing, and analysis of medical imaging signals. It introduces multiple widely used medical imaging techniques such as MRI, diffusion MRI, X-ray, and CT, as well as both the conventional and deep learning-based image processing and machine learning methods to analyze medical image data for diagnosis. During the course, some commonly used software and platforms for medical image analysis, especially for brain image analysis, will also be covered.

MEDICAL MECHATRONICS Lab, Chinese University of Hong Kong, China 2022.3-Present

- **Remote Research Intern, Advisor: Prof.** *Hongliang Ren*, **PhD.** *Long Bai*
- Capsule Endoscopy Image Research:
  Super-Resolution, Low-Light Enhancement, Semantic Segmentation.

MengShi Automatic Driving Lab, Tsinghua University, China 2021.11-2022.6

- **Remote Research Intern, Advisor: Prof.** *Xinyu Zhang*, **PhD.** *Li Wang*
- Aimed to achieve a method in multi-sensor joint calibration as well as make a unified dataset.
- Finished the design of the calibration board and partial programming of the calibration program for the multi-sensor joint calibration (Vision Camera, 3D-Lidar, 4D-RaDar).
- Better understanding of image distortion correction and more proficient in MATLAB programming.

UV Lab of Ministry of Education for Photoelectronic Imaging Technology and System
Beijing Institute of Technology, China 2021.6-2022.6

- **Research Intern, Advisor: Prof.** *Yi Tang*
- Aimed to propose a better algorithm for pose estimation in 3D point cloud.
- Proposed two new pose estimation algorithms by modifying existing pose estimation methods. (PCA_ICP & RANSAC_PCA) Both two methods have better robustness and accuracy (92.1% & 96.6%), and they also have relatively fast response times (less than 3ms).
- Got a certain understanding of point clouds' data structure, and mastered some methods and tools in 3D data processing, as well as more proficient in Python programming.

Publications

[1] Long Bai†, **Tong Chen**†, Yanan Wu, Mobarakol Islam, Hongliang Ren, "LLCaps: Diffusion Models Boost Low-light Image Enhancement in Wireless Capsule Endoscopy" ***Medical Image Computing and Computer Assisted Interventions*** *(MICCAI 2023) (Oral)* https://doi.org/10.1007/978-3-031-43999-5_4

[2] Long Bai†, Liangyu Wang, **Tong Chen**, Yuanhao Zhao, and Hongliang Ren, "Transformer-based Disease Classification for Small-size Dataset of Capsule Endoscopy", ***Electronics-1830755; doi: 10.3390/electronics11172747***. https://www.mdpi.com/2079-9292/11/17/2747

[3] Guankun Wang†, Long Bai†, Yanan Wu, **Tong Chen**, Hongliang Ren, "Rethinking exemplars for continual semantic segmentation in endoscopy scenes: Entropy-based mini-batch pseudo-replay" **Computers in Biology and Medicine** https://doi.org/10.1016/j.compbiomed.2023.107412

[4] Hechen Li†, Yanan Wu, Long Bai, An Wang, **Tong Chen**, Hongliang Ren, "Semi-supervised Learning for Segmentation of Bleeding Regions in Video Capsule Endoscopy" ***International Conference on Biomimetic Intelligence and Robotics (ICBIR) 2023***

[5] **Tong Chen**, Screen Color Test: A display evaluation method based on color gamut analysis. *Patent Application September 21, 2021.* *(https://maiimg.com/dec/d51173358503@pdf)*

Honors & Awards

- "Challenge Cup" National College Students Extracurricular Work Competition 3rd Prize
- 8th National College Students photoelectric competition 3rd prize of North China
- 7th National College Students photoelectric competition 3rd prize of North China
- BIT Academic Excellent Scholarship (1st) 2021.3
- BIT Academic Excellent Scholarship (3rd) 2021.9
- BIT Academic Excellent Scholarship (1st) 2020.9
- BIT Academic Excellent Scholarship (2nd) 2019.3

Skills

- **Programming Language:** C/C++, MATLAB, Python, LaTeX, Assembly language
- **Framework & Platform:** Visual Studio 2017, Vscode, PyTorch, Autoware, ROS, PCL
- **Software:** Zemax, Multisim, SolidWorks, Adobe Premiere
- **Hardware:** Optical path construction, Single Chip Microcomputer, CCD/CMOS image sensor
- **Languages:** TOEFL 111, Japanese-N2 level

Extracurricular Activities

- Leader of BITRXNEWS at the BITRX academy 2020.10-2021.07
- Member of the BIT Optics and Photonics Academy presidium 2020.10-2021.07
- Team leader of the media team at the BIT TV station 2019.10-2021.07