

## ZHITAO CHENG

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### EDUCATION

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**University of Electronic Science and Technology of China (UESTC)** 09/2020-06/2024  
B.S. in Data Science and Big Data Technology, B.Eng. in Computer Science and Technology  
Overall GPA: 3.96/4.0, ranking 1/113  
Related Courses: Mathematical Analysis, Advanced Algebra, Mathematics in Data Science, Data Mining and Big Data Analytics, Artificial Intelligence, Mathematical methods of artificial intelligence

### SELECTED PUBLICATIONS

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- [1] Chenyan Jia, **Zhitao Cheng**, Yanlin Leng, Junfeng Wang, Yong Tang. [MPRNet: Multi-scale Pointwise Regression Network for Crowd Counting and Localization](#). *2024 International Conference on Intelligent Computing Singapore*: Springer Nature Singapore, 2024: 180-191.
- [2] Yao Xiao, **Zhitao Cheng**, Shengping Liu, Yicheng Zhang, He Tang, Yong Tang. [PhotoSolver: A bidirectional photonic solver for systems of linear equations](#). *Optics and Lasers in Engineering*, 2024, 183: 108524.
- [3] Yong Tang, Jason Xiong, **Zhitao Cheng**, Yan Zhuang, Kunqi Li, Jingcong Xie, Yi-Cheng Zhang. [Looking into the Market Behaviors through the Lens of Correlations and Eigenvalues: An Investigation on the Chinese and US Markets Using RMT](#). *Entropy*, 2023, 25, 1460.
- [4] Zongyao Zhao, Yong Tang, **Zhitao Cheng**, Yanlin Leng, LiLing Tang. [ABL-TCM: An Abductive Framework for Named Entity Recognition in Traditional Chinese Medicine](#). *IEEE Access*, 2024.
- [5] Yao Xiao, Yang Zhao, Wei Wang, **Zhitao Cheng**, Xizhu Peng, He Tang, Shengping Liu, Yong Tang. [Residual Calibration for High-Precision Optical Neural Networks](#), *Optica*, under review, 2024. (Top Journal)
- [6] **Zhitao Cheng**, Yan Zhuang, Xujia Li, Yuyang Zhuge, Yanlin Leng, Qing Wang, Song Su, Jiayu Huang, Yong Tang. [Diagnosis of Cataract of Human-companion Animals using Deep Learning](#). Submitted to *The Veterinary Journal*, under review, 2024.
- [7] Li Wang, **Zhitao Cheng**, Yan Zhuang, Kunqi Li, Fan Li, Song Su, Jian Shu, Jing Chen, Yong Tang. [Early assessment of myocardial injury in patients with COVID-19 using a two-stage deep learning framework based on non-contrast chest CT](#). Submitted to *Journal of Cardiovascular Computed Tomography*, under review, 2024.
- [8] Jiali Wu, **Zhitao Cheng**, Junan Zhou, Kunqi Li, Piao Wang, Yan Zhuang, Jijun Lu, Linru Zhou, Fan Li, Song Su, Yong Tang. [Accurate Identification of Intestinal Ischemic Areas Using Hyperspectral Imaging: A Pilot Study Based on Machine Learning and Deep Learning Models](#). Submitted to *Computers in Biology and Medicine*, under review, 2024.

### RESEARCH

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**Artificial Intelligence Application and Technology Laboratory, UESTC** 06/2024-Present  
Research Assistant | Supervised by Prof. Yong Tang

- Assist in managing the research team, projects, and laboratory, and guide freshmen in the lab
- Do research and write documentations.

**Light sailor: an laser powered spacecraft for interplanetary travelling(202210614179Y)** 12/2021-10/2022  
School Project | Mentor: Prof. Yong Tang

- The lightsail spacecraft is designed, and the reinforcement learning is used to control the navigation trajectory and the lightsail attitude, and the simulation experiment is experiment in computer using Python.

**Foodshot: A deep learning-based intelligent system for food recognition** 12/2020-07/2021  
Entrepreneurial Project | Mentor: Prof. Yong Tang

- Collect food images from Internet using Python crawler and construct dish classifier using CNN.

**National Key R&D project: Intelligent Healthcare for Winter Olympics (Beijing)** 10/2020-12/2022  
Entrepreneurial Project | Mentor: Prof. Yong Tang

- Using the competition video of athletes, a posture detection model (Yolo, Fast-RCNN) is constructed to detect the fall of athletes, and the fall site is judged to be serious, and the rescue doctor is assisted in treatment.

**National Key Research and Development Program of China (2023YFC3605202)** 10/2023-12/2028  
National Project | Mentor: Prof. Junfeng Wang

- Research on the establishment and application of the evaluation system based on the aging rule of the elderly.

- Based on the questionnaire survey of the elderly and various medical health indicators, a time series analysis model (LSTM, Transformer, Mamba) is established to predict and manage the internal functional health of the elderly from horizontal and vertical.

#### National Natural Science Foundation of China (82272077)

10/2021-12/2026

National Project | Mentor: MD. Jian Su, Prof. Yong Tang

- Image data such as CT and MRI and medical clinical related feature data were used to assist the diagnosis of related extra-biliary duct cancer diseases, including image lesion segmentation, disease types and related expression classification (ResNet, DenseNet, UNet).

#### Key Projects of National Natural Science Foundation of China

##### Key R&D project of Chongqing (CSTC2020JSCX-CYLHX0006)

10/2020-12/2025

National Project | Mentor: Prof. He Tang, Prof Yong Tang

- Silicon-based optoelectronic chip system for ultra-high-speed matrix multiplication. Key technology research and application of optoelectronic hybrid artificial intelligence chip public service platform.
- Computer simulation using Python for properties of materials test and optical neural networks design (like diffraction deep neural network (D2NN)) using artificial intelligence algorithm.

## INTERNSHIPS

#### AI Lab, DKWA Technologies

09/2023-Present

- Large Language Model applications (Consultation system, Local database with RAG, Knowledge graph)

#### AI Lab, Futong Technology Co. Ltd, Chengdu, China | Intern

07/2021-09/2022

- Artificial Intelligence in Computer Vision and applications (Video detection, Image classification)

## TEACHING EXPERIENCE

#### Nonlinear Dynamics and Advanced Signal Processing Techniques

09-12/2024

*Instructor: Prof. Ludovico Minati | 15 sophomores & juniors | Spring 2024 (24hrs)*

- Provided teaching feedback and organized Q&A sessions

#### Artificial Intelligence

09-12/2022 & 09-12/2023

*Instructor: Dr. Yong Tang | 41 sophomores | Fall 2022 (32hrs) & Fall 2023 (32hrs)*

- Wrote demo code, guided students in coding example problems, and organized Q&A sessions

#### C&C++ Programming Language

09-12/2022 & 09-12/2023

*Instructor: Dr. Yong Tang | 52 freshmen for Fall 2022 (48hrs) | 53 freshmen for Fall 2023 (48hrs)*

- Assisted in preparing course materials, explained example projects, and organized Q&A sessions

## SELECTED HONORS & AWARDS

#### Scholarships:

2021-2022 National Scholarship in China

10/2022

Excellent Student Scholarship

10/2021 & 10/2022 & 10/2023

#### Honors:

Outstanding Graduate of Sichuan Province (Top 3% Nationwide)

07/2024

Honorary Research Student in the School of Mathematical Sciences at UESTC (Top 2 Undergraduates)

06/2024

“Most Outstanding Students” Award Nominee of UESTC (Top 20 Undergraduates)

12/2023

#### Awards:

Gold Medal, The 2023 ICPC Asia Hangzhou Regional Contest

12/2023

Gold Medal, The 15th Programming Competition for college students in Sichuan Province

06/2023

## SKILLS

**Computer:** Python (PyTorch) (4 years), C and C++ (7 years), SQL (2 years), MATLAB (3 years), LaTeX (3 years), 3D Studio Max (2 year), Adobe Photoshop (2 year), Adobe Audition (1 year)

**ILETS:** 7.0/9.0 (Overall score)

**Interests:** Table Tennis; Piano; Animation, Cartoon and Game (ACG)