

ZHITAO CHENG

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EDUCATION

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

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 **2000 food images** from Internet using Python crawler. Construct dish classifier (**VGG16, GoogleNet**).

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

- Using the competition videos (**62 videos**) of athletes, a posture detection model (**Yolo, Fast-RCNN**) is constructed to detect whether the athlete falls, and where injuries may occur after a fall to assist the doctor in treatment. Achieved an accuracy of **96.77%** for fall detection, and **91.94%** for injuries classification.

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. (Using time series analysis model (**LSTM**, **Transformer**) and **machine learning**)

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.
- Using Python for optical neural networks design (like diffraction deep neural network (D2NN)) with artificial intelligence algorithm. Proposed a new structure of D2NN for color image classification, and improve the accuracy **from 46.09% to 60.85%** compare to the gray image and traditional structure of D2NN.

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)