

BAI-RUI ZHANG

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Country P. R. CHINA

EDUCATION

- Northeastern University P. R. CHINA
B.E., GPA:4.22/5.0, Department of Computer Science & Technology 09.2021 – 06.2025
IELTS score:6.5 Ranking:3/116
- The Chinese University of Hong Kong, Shenzhen P. R. CHINA
Intern student 05.2024 – Present

SELECTED AWARDS AND HONORS

- International-Level Meritorious Winer (Top 8%), Mathematical Contest in Modeling (MCM/ICM) 02/2024
- International-Level 1st Prize (Top 5%), Asia and Pacific Mathematical Contest in Modeling 11/2023
- University-Level Merit Student (two consecutive years) 2022 – 2023
- University-Level Comprehensive Scholarship, four consecutive semesters 2021 – 2023

SKILLS, TECHNIQUES & INTERESTS

Professional Skills

- Python, C++, Matlab, SQL, HTML
- Deep Learning (CNN, LSTM, Transformer); Machine Learning (SVM, XGBoost, Random Forest)
- Large Language Model Testing and Data Processing
- Linux (Ubuntu), Docker, Kubernetes, Visualization

Research Interests

- LLMs, AGI, AI Agent, AIGC, AI for Healthcare, Embodied intelligence

RESEARCH EXPERIENCE

Project: Multimodal Emotion Recognition Model Improvement

Position: Undergraduate Researcher

10.2023 – Present

Advisor: Prof. Miao Fang, Northeastern University

Description:

- Replicated and enhanced a Transformer-based multimodal emotion recognition model, improving accuracy from 71% to 73%, and developed forward and loss functions for modality-specific classification, enhancing model robustness.
- Using prefixes learned from cross-modality to tune pre-trained models efficiently.
- Expected to submit to *COLING* (1st Author) in September 2024.

Project: AI in Pancreatic Image Analysis: A Review

Position: Undergraduate Researcher

03.2023 – 05.2024

Advisor: Prof. Yong Liu, Zhejiang University

Description:

- Summarized advancements in AI algorithms for pancreatic cancer imaging (CT, MRI, EUS), providing valuable insights for the medical field.
- Contributed to a 22,000-word review focusing on algorithms for image classification, segmentation, and prognosis prediction.
- Accepted by Sensors (SCI, JCR Q2, 2nd Author)

Project: Sepsis Mortality and Medication Prediction Modeling

Position: Summer Research Camper

07.2023 – 04.2024

Advisor: Prof. Manolis Kellis, Massachusetts Institute of Technology

Description:

- Developed a personalized medication prediction model for sepsis, utilizing machine learning techniques like SVM, Random Forest, and XGBoost.
- Identified critical vital signs and medications influence sepsis mortality, with model accuracy reaching 73%.
- Achieved an "A" grade (98/100) for the project evaluated by Prof. Kellis, ranking 1st in the team.
- Accepted by ISAIMS (EI, 1st Author)

INTERNSHIP EXPERIENCE

The Chinese University of Hong Kong, Shenzhen

05.2024 – Present

Position: *Research Assistant*

Supervisor: *Prof. Benyou Wang, The Chinese University of Hong Kong, Shenzhen*

Description:

- Conducted comprehensive literature reviews on multimodal medical large language models.
- Identified vital attributes for an effective medical multimodal LLM and developed testing methodologies.
- Expected to publish an essay titled “Are Medical LLMs Ready? A Critical Study” (1st Author) in October 2024.

NON-ACADEMIC EXPERIENCE

Northeastern University, China

Publicity Coordinator of 2104 Computer Science & Technology Class

09.2021 – 09.2023

Managed class communications, organized events, and promoted activities through college media channels.

Northeastern University & University of Technology Sydney

09.2023 – 12.2023

International Subject Assistant

Facilitated international program coordination, addressing course-related challenges among teachers and students.

PUBLICATIONS

Liu W, **Zhang B***, Liu T, et al. Artificial Intelligence in Pancreatic Image Analysis: A Review[J]. *Sensors*. (2nd Author)

DOI. [10.3390/s24144749](https://doi.org/10.3390/s24144749)

Zhang, B.*, Cai, Q., Ding, J., & Yuan, K. Factors that increase sepsis mortality and personalized medication for patients with sepsis. *In Proceedings of the 2023 4th International Symposium on Artificial Intelligence for Medicine Science*.

(1st Author) **DOI.** [10.1145/3644116.3644330](https://doi.org/10.1145/3644116.3644330)

Zhang, B.*, Taking Cloze with Options: Detecting Social Emotions with Affective Knowledge Prompts. *COLING*.

Under Review

Zhang, B*, et al. Multifunctional Desktop Expander [Patent]. CN202322388965.X, 2024-04-09.

Zhang, B*, et al. Desktop Expander (Multifunctional and Foldable) [Patent]. CN202330570881.0, 2024-03-08.

Liu, W, **Zhang, B***, et al. An Image Acquisition and Diagnostic Aid Device [Patent]. CN202321362505.3, 2024-02-20.

REFERENCES

Chao Liu, Ph.D.

Professor, Dean of the School of Mathematics and Statistics

Northeastern University

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Manolis Kellis, Ph.D.

Professor, MIT Computer Science Member, Broad Institute of MIT and Harvard

MIT Stata Center

Massachusetts Institute of Technology

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