Zelin Fu

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Education

Northeastern University (NEU) 2022 – 2026 (Expected)

B.S in Computer Science (CS) | GPA: 89.5/100 (ranked 8/115)

Research Interests

Multi-modal LLMs; Embodied AI; Computer Vision

Publications

1. Changzeng Fu, **Zelin Fu**, et al. (2025). The First MPDD Challenge: Multimodal Personality-aware Depression Detection. *ACM Multimedia* (CCF-A, Accepted). [*link*]
2. Changzeng Fu, **Zelin Fu**, et al. (2024). In-Context Multitask Learning for Few-shot Fine-tuning of Large Language Models in Traditional Chinese Medicine Tongue Diagnosis. *ICASSP* (CCF-B). [*link*]
3. Changzeng Fu, Qi Zhang, **Zelin Fu**, et al. (2025). A Privacy-Constrained Speech Emotion Recognition Framework using Transformers and Fibonacci Position Embedding. *ESWA* (JCR-Q1, Under Review).

Honors and Awards

— *Scholarship Awards*

- ***National Scholarship (1st Place in major)***
- *Outstanding Student (Top 1.5%)*
- *Second-class Scholarship (Top 4.5%)*
- *Innovation and Entrepreneurship Scholarship*

— *Competition Awards*

- ***National 1st Prize*, 19th National SmartCarRace for College Students**
- *National 2nd Prize*, 5th Global Campus Artificial Intelligence Algorithm Elite Competition
- *National 2nd Prize*, 2024 Mathematical Contest In Modeling
- *National 3rd Prize*, 22nd National RoboMaster Super Combat
- *National 3rd Prize*, 17th Chinese Collegiate Computing Competition

Internship

HACI Lab, NEU *Mar. 2024 – Present*

Advisor: Dr. Changzeng Fu
Research Assistant – Multimodal Affective Computing | LLMs | HCI

Beijing CodNoy Co., Ltd. *Sep. 2023 – Dec. 2023*

Front-end Development Intern – Java | Database Management

ABB Xiamen Smart Technology Co., Ltd *Jul. 2023 – Aug. 2023*

Embedded Development Intern – Firmware Programming | Embedded Systems

Research Experience

Multimodal Personality-aware Depression Detection *Oct. 2024 – July 2025*

HACI Lab (NEU) | OU | CAM | IC | WU | XMU – Core Contributor

- Extracted and processed multimodal features from audio and video data.
- Used **LLMs** to generate personality trait embeddings for personalized depression prediction.
- Developed the baseline code and implemented **multimodal models** for depression classification [*Code*].
- Conducted experiments and reported benchmark results, wrote the baseline paper.
- A Grand Challenge proposal and baseline paper are accepted to ***ACMMM 2025*** [*Challenge-Website*] .

LLM-based TCM Tongue Diagnosis *Mar. 2024 – Oct. 2024*

HACI Lab (NEU) – Group Leader

- Constructed two datasets form TCM clinic and website with tongue feature labels for **few-shot tine-tuning**.
- Proposed an in-context multitask fine-tuning framework for **LLMs**, applied **LoRA** for few-shot fine-tuning.
- Achieved **58.02%** accuracy in eight-type constitution classification, results published at ***ICASSP 2025***.

Video Understanding Enhancement with VLM *Jan. 2024 – Feb. 2024*

NLP Lab (NEU) | NTU | UTS – Group Leader

- Reproduced **Vision-Language Models** to validate performance on benchmark Video-QA datasets.
- Integrated **Chain-of-Thought** reasoning methods into temporal question answering to enhance multi-step video understanding.

A Privacy-Constrained SER Framework *Dec. 2024 – Feb. 2025*

HACI Lab (NEU) | OU – Core Contributor

- Collected and analyzed baseline methods for privacy-aware speech emotion recognition to support model comparison and experiment design.
- Participated in manuscript writing and revision.
- A paper has been submitted to ***Expert Systems with Applications***.

Project Experience

Intelligent Rescue System *Apr. 2024 – Aug. 2024*

19th SmartCarRace for College Students – Core Contributor | National 1st Prize

- Integrated **YOLOv5** with **ROS** for object detection and navigation by calibrating camera–LiDAR and computing target distance and heading angles[*Code*].
- Built a **U-Net** based lane-following algorithm with lighting robustness.

TCM diagnosis system *Mar. 2024 – Oct. 2024*

HACI Lab (NEU) – Group Leader

- Developed a non-contact **pulse detection system** using an external webcam, extracted wrist regions from video frames for heart rate calculation [*Code*].
- Extracted facial landmarks using **OpenCV** and **dlib** for facial color and puffiness detection.
- Built a vector database and integrated **LLMs** with **RAG** for multi-source diagnostic interpretation.
- An invention patent has been accepted, led a provincial-level innovation project as the first author.

Road Disease Detection *Dec. 2023 – Jan. 2024*

Global Campus AI Algorithm Competition – Core Contributor | National 2nd Prize

- Trained and ensembled **object detection models** with bounding box fusion for road damage detection.
- Collected and semi-supervised annotated data using web crawlers [*Code*].

Skills

- **Programming Languages:** Python, C, C++, Java, Matlab, Bash, SQL, HTML
- **Frameworks:** PyTorch, Tensorflow, DeepSpeed, OpenCV, ROS
- **Tools:** Git, LaTeX, Docker

Miscellaneous

- *Blog* · *GitHub* · *Zhihu* · *Personal Website*
- Languages: English - TOEFL: 95 | Mandarin - Native speaker
- Interests: Percussion (World 3rd Prize), Piano (Level 10), Badminton (Varsity member), Basketball (MVP, CS Department Tournament)