

Panzhong Lu

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BACKGROUND

Westlake University

Hangzhou, China

– *Research Assistant, School of Engineering; Supervisor: Prof. Yue Zhang* Apr. 2023 – Dec. 2023 (expected)

– **Research Interests: Multimodal, Machine Learning for Science and Human-Computer Interaction**

Tianjin University

Tianjin, China

– *M.E. in Computer Technology; Grade: 83.63; Supervisor: Asst. Prof. Meishan Zhang* Sep. 2020 – Jan. 2023

- **Grounded Language Learning(Pub1)**: Created a new dataset with pronouns called VD-Ref for grounded language learning. Tested with a state-of-the-art model and explored the benefits of using coreference knowledge.
- **Cross-Modal UAV Command(Proj1)**: Developed an interactive UAV application using technologies such as image-text generation, object detection, and coreference resolution to control ANAFI Ai in simulation settings.
- **Visual Language UAV Navigation(Proj2)**: Utilized the visual language navigation model (VLNCE) to command the Amov P450 UAV for intelligent autonomous navigation using ROS's topic and service communication mode.

Huazhong Agricultural University

Wuhan, China

– *B.S. in Information and Computing Sciences; Grade: 90.52(4/92)* Sep. 2016 – Jun. 2020

– **Relevant courseworks:** Mathematical Analysis(95), Linear Algebra(96), Discrete Mathematics(99), Fundamentals of Information Theory(99), Data Analysis(96), Computer Network Experiment(98), Data Mining A(97)

– **Research Experiences:** Participation in an Algorithm Seminar, improving the Attractor algorithm for unsupervised community detection accuracy, and establishing an active gene annotation corpus for enhancing anti-epilepsy drug discovery, resulted in publication of research papers.(In the second and third years of University.)

PUBLICATIONS & PATENTS

[1] **Panzhong Lu**, Xin Zhang, Meishan Zhang, and Min Zhang. [Extending Phrase Grounding with Pronouns in Visual Dialogues](#). *EMNLP* 2022.

- **Problem:** Difficulty in accurately locating referents in phrase grounding task due to lack of consideration for pronouns and corresponding datasets.
- **Solution:** Created VD-Ref dataset and improved MDETR model by including coreference chain information.
- **Results:** Incorporating coreference chains significantly improved model performance, revealing interesting phenomena such as the easier grounding of pronouns over regular nouns or noun phrases.

[2] Yuxing Wang, Kaiyin Zhou, Jin-Dong Kim, Kevin B Cohen, Mina Gachloo, Yuxin Ren, Shanghui Nie, Xuan Qin, **Panzhong Lu**, Jingbo Xia. [An active gene annotation corpus and its application on anti-epilepsy drug discovery](#). 2019 IEEE International Conference on Bioinformatics and Biomedicine (*IEEE BIBM*). (CCF-B)

[3] Meishan Zhang, **Panzhong Lu** and Yueheng Sun. A Multi-Modal-Oriented Interactive Data Annotation Method and System. CN202210478381.9

[4] Meishan Zhang, **Panzhong Lu**, Zhichao Lin and Yueheng Sun. A Method and Device for Analyzing Human-Computer Interaction Instructions based on Multi-Modal Semantic Role Recognition. CN202210659318.5

PROJECTS

[1] **Human-computer Interaction in Simulation Environment** National Research Institution(sensitive)

- Utilized UAV to capture images of simulation environment, then used image descriptions to direct the UAV's flight to a specific position. Implemented a pixel-based technique to determine distance by tracking image pixel changes.

[2] **Visual language Navigation in Real Environment** National Research Institution(sensitive)

- Explored visual language navigation for UAV in real environment using VLNCE model. Predicted user instructions and RGB/depth images transmitted to UAV via ROS for corresponding actions.

[3] **Customized Virtual Digital Human for Government** University & Company (collaborative)

- Employed Large Language Model, Automatic Speech Recognition, Text-to-Speech, and Talking Head Generation technologies to develop interactive, tailor-made virtual digital personas.

AWARDS & ACHIEVEMENTS

National Encouragement Scholarship: Awarded in 2017 and 2018.

Scene Comedy Laughter Point Identification Competition: Third Prize, China National Conference CCL 2020.

Merit Student & Excellent Student Cadre: Awarded in Tianjin University and Huazhong Agricultural University.

SKILLS

Programming: Python, C, C++, Java, MATLAB, R, MySQL, HTML/CSS/Javascript, PHP, Shell, LaTeX

Frameworks & Technologies: Pytorch, Tensorflow; Git, ROS

Languages: Chinese (Native), English (Fluency)

REFERENCES

Asst. Prof. [Meishan Zhang](#) (HIT[SZ]), Prof. [Min Zhang](#) (HIT[SZ]), Prof. [Yue Zhang](#) (Westlake University)