Jiateng Liu

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ACADEMIC INTEREST

I'm broadly interested in Natural Language processing and its related applications, especially when language is grounded to vision, robotics and beyond.

EDUCATION BACKGROUND

Department of Computer Science, University of Illinois Urbana-Champaign **IL, USA**
Master of Science in Computer Science **Mentor:** *Prof: Heng Ji* *08/2023-06/2025(Expected)*

College of Computer Science and Technology, Zhejiang University **Hangzhou, China**
***Bachelor of Science* in Computer Science** *09/2019-06/2023*

- **Overall GPA:** 3.94/4.0; 89.99/100 **Junior year GPA:** 3.96/4.0; 91.62/100 **Major GPA:** 4.0/4.0

STANDARD ENGLISH TEST SCORES

TOEFL: 109 (S24) **GRE:** 334+AW3.5

PUBLICATION

[1] Jiateng Liu*, Sha Li*, Zhenghailong Wang, Manling Li, Heng Ji, ***A Language First Approach to Procedural Planning***, Published as a findings paper on ACL 2023.

RESEARCH EXPERIENCE

University of Illinois, Urbana Champaign **IL, USA**

Project: Language First Approach for Procedural Planning *June 2022~Dec 2022*
Research Intern (Online), Blender-NLP- Lab *Advisor: Prof. Heng Ji*

- Study the multi-modal tasks of procedural text understanding of robot task planning using the planning ability of language models and text supervision, which will better supervise the plan generation than planning with the visual supervision.
- Created a modularized framework for procedural planning tasks, including a conditional double retrieval model to do the alignment, and a language model which handled the planning process.

Stanford University **CA, USA**

Project: Curvenet: 3D Reconstruction from Curve Data *Nov 2022~ March 2023*
Research Intern (Online), Geometric Computation group *Advisor: Prof. Leonidas Guibas*

- Aims to use the curve pattern to improve the performance in various downstream tasks, like the creation of 3D scanner that rapidly scans extremely dense beams and controls the pattern of the beams.
- Considered a non-learning setting and a learning setting for shape reconstruction. Experimented on various backbones by adding extra constraints, employing new loss functions, and implementing carefully designed curve modules.
- Achieved a good result on a few segmentation tasks with several backbones.

Zhejiang University **Hangzhou, China**

Project: Multi-Model representation Learning / Efficient Transformers *Dec.2021~ April 2022*
Lab of Visual Intelligence and Pattern Analysis, *Advisor: Prof. Zunlei Feng & Mingli Song*

- Did patch slimming to accelerate the inference time of transformers.
- Refined Multi-modal representation learning method based on Clip, improved the information of foreground and background using fine-grained features. Tried to refine the contrastive learning process.
- Conducted a lot of ablation studies / experiments for different downstream tasks.

Project: The Optimization of 3-D Human Mesh Based on Transformer *Sep.2021~ Dec.2021*
Research Intern, Lab of Visual Intelligence and Pattern Analysis, *Advisor: Prof. Zicheng Liu & Mingli Song*

- Optimized the existing Transformer-based 3D body reconstruction models, typically based on MeshTransformer and MeshGraphormer, which employed transformer encoder with a simple model to

reconstruct 3D human mesh.
- Proposed to introduce time series into the prediction step to obtain better results for the 3D mesh reconstruction.
- Completed an error detection pipeline which was further used by the PhD students who carry on this project.

School of Computing, National University of Singapore **Singapore**

Project: Room Environment Adjustor Based on Posture Detection *July 2021- August 2021*

Summer Workshop, 2021 *Supervisor: Prof. Colin Tan*

- Applied CNN to develop a self-reacting system to automatically recognize normal human behaviors, including standing up, sitting in front of the desk, and sleeping on the desk, then turn on/off the light for us accordingly.
- Development tools: Rasberry Pi, DHT Sensor, etc.

PROFESSIONAL CONTESTS

How Fungi grow: The Balance of Plant Community *Mar. 2021*

2021 Mathematical Contest in Modeling / Interdisciplinary Contest in Modeling

- Built a systematic mathematical model to describe the development and declination of a micro-system.
- Applied the interpolation methods to reconstruct the relation curve between wood decomposition, the fungi growth rate and the moisture condition, and employed approximate method to expand the temperature range of the given curve.

Nimbus 2019-Aquatics Entertainment System *Mar. 2019*

"Yong Dian Cup" Innovation and Creativity Competition

- Designed an aquatics entertainment system integrated with intelligent lighting interaction and automatic scoring, to enhance the fun and experience of aquatics recreation.
- Realized the modules of the system, including streamer track, feedback score setting and intelligent display, etc.

SKILLS

- **Programming Skills:** Python, C, C++, Verilog, etc.
- **Assembly Language:** 8086/8088 assembly language etc.
- **Deep Learning Framework:** Familiar with Pytorch, OpenCV, Tensorflow, etc.

SELECTED COURSEWORKS

Using Mindspore Framework for VQA task *June 2021*

Coursework for Nature Language Processing; Score: 4.0/4.0

- Crated my own model on Mindspore platform for solving the classic VQA task on a given dataset.
- Beat the model performance of all the other students in the class. Got the highest score in class.
- My code and illustration for the problem is recommended to HuaWei Mindspore community.

The Development of A 3D Racing Game *June 2021*

Coursework for Computer graphics; Score: 4.0/4.0

- Designed a single-player car racing game, including free surround mode, free drive mode and race scoring mode.
- Mainly realized the game background module, I/O module, perspective conversion module, etc.

Design of Shooting Game with VGA Display *Dec. 2020*

Coursework for Digital Logic Design; Score: 4.0/4.0

- Independently implemented a small shooting game using Verilog language in Xilinx ISE12.4 development environment on Sword Kintex7 experimental platform.

ADWARDS AND HONORS

- Second-class scholarship, Zhejiang University *2021/2020*
- Honorable Mention, 2021 Mathematical Contest in Modeling (MCM/ICM) *2021*
- Academic Excellent Award, Zhejiang University *2020*
- First prize (Zhejiang Province), College Students Physics Innovation Competition *2020*
- First prize, The 12th Chinese Mathematics Competitions *2020*