

Panzhong Lu

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BACKGROUND

Westlake University

– Research Assistant, School of Engineering; Supervisor: Prof. Yue Zhang

Hangzhou, China

Apr. 2023 – Now

Tianjin University

– M.E. in Computer Technology; Grade: 83.63; Supervisor: Assoc. 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

– B.S. in Information and Computing Sciences; Grade: 90.52(4/92)

Wuhan, China

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

[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] Zhonghang Liu, Panzhong Lu, Wen-yan Lin. Rethinking Unsupervised Outlier Detection via Multiple Thresholding. *ECCV 2024*.

[3] 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. *BIBM 2019*.

[4] Qiji Zhou, Ruochen Zhou, Zike Hu, Panzhong Lu, Siyang Gao, Yue Zhang. Image-of-Thought Prompting for Visual Reasoning Refinement in Multimodal Large Language Models. *arXiv Preprints*.

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

Westlake University — WestlakeNLP Lab

- Employed innovative 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.

Others: Two granted patents, two accepted ordinary conference papers. **Services:** Teaching Assistant.

SKILLS

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

Frameworks & Technologies: Pytorch, Tensorflow; Git; ROS; Django, Flask, FastAPI

Languages: Chinese (Native), English (Fluent), IELTS Score: 6.5 (sub-score ≥ 6)

REFERENCES

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



Name: Lu Panzhong	Student number: 2016310200112	Gender: Male	Date of Birth: 07/12/1997	Date of Admission: 09/2016
College: College of Sciences	Major: Information and Computing Science		Date of Graduation: 06/2020	
2016-2017 First semester		Fuzzy Mathematics	2.0	93
Course	Credits	Score	Mathematical Modeling A	2.5 86
Foundation of College Computer	1.5	77	Practice of Mathematical Modeling and Software Development	3.0 93
Experiment of College Computer Foundation	0.5	92	Basic knowledge of Marxism	3.0 81
Mathematical Analysis (I)	5.0	82	Spoken English	1.5 76
Advanced Algebra (I)	5.0	91	IELTS Listening	1.5 82
C/C++ Programming (I)	2.0	94	Table-tennis(Basic Level)	1.0 92
C/C++ Programming Experiment (I)	1.0	93	Social Practice	1.0 88
Ethnics and Law	3.0	94	2018-2019 First semester	
College English (I)	3.0	86	Course	Credits Score
Basic Physical Education	1.0	90	College Physics A	4.5 79
Military Theory and Training	2.0	95	College Physics Experiment	1.0 90
2016-2017 Second semester		Web Development Technology	2.0	89
Course	Credits	Score	Complex Function	2.5 87
Nutrition and Modern Life	1.5	84	Numerical Analysis	4.0 93
Mathematical Analysis (II)	5.0	92	Experiments of Numerical Analysis	1.0 97
Advanced Algebra (II)	5.0	96	Data Analysis	3.5 96
Geometry	2.5	96	Foundations of Information Theory	2.5 99
C/C++ Programming (II)	2.5	88	JAVA Language Programming A	2.5 94
C/C++ Programming Experiment (II)	0.5	96	College Students Etiquette	2.0 91
Outline of Chinese Modern History	2.0	94	2018-2019 Second semester	
Practical Writing(MOOC)	2.0	92	Course	Credits Score
College English (II)	3.0	88	Chinese Alcoholic Beverage Culture	2.0 94
Tennis (Basic Level)	1.0	89	Microeconomics	4.0 85
Situation and Policy Education (I)	1.0	93	Data Mining A	2.0 97
2017-2018 First semester		Operational Research A	4.5	85
Course	Credits	Score	Real Variable Function	2.5 95
College Mathematics Experiment A	1.0	92	Selected Course in Analysis and Algebra	3.5 80
Data Structure and Algorithms	3.5	90	Computer Networks A	3.0 90
Experiments of Data Structure and Algorithms	0.5	90	Computer Networks A Experiment	0.5 98
Mathematical Analysis (III)	5.0	95	Graduation Practice	2.0 95
Discrete Mathematics	4.0	99	Film and Television Literature Appreciation	2.0 95
Mathematical Modeling(MOOC)	2.0	97	2019-2020 First semester	
Outline to Mao Zedong Thought and Socialist Theory System with Chinese Characteristics	6.0	89	Course	Credits Score
College English (II)	3.0	82	AIDS, Sex and Health	1.0 84
Badminton	1.0	92	2019-2020 Second semester	
2017-2018 Second semester		Course	Credits	Score
Course	Credits	Score	Knowing of Heaven(MOOC)	2.0 95
Experiments of Mathematical Modeling A	0.5	93	Situation and Policy Education (2)	1.0 91
Ordinary Differential Equations	4.0	94	Graduation Thesis	6.0 89.2
Probability and Statistics A	5.0	86	Critical Thinking and Innovation	2.0 98
Experiments of Database System Technology	1.0	91	GPA	3.78

Number: FHGG CEII EAOF HGDK DPNJ KACJ L

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教务处长签章
Dean

Office of Undergraduate Academic Affairs

教务处(盖章)

打印日期
Issue Date: November 14, 2022

华中农业大学本科学生成绩单相关说明

Official Explanations on the Grading System for Undergraduate
Student's Academic Transcript, HuaZhong Agricultural University

一、平均学分绩点计算公式(GPA Formula)

百分制成绩 (Hundred-mark system)	成绩等级 (Grade)	学分绩点 (Grade points)
90~100	优 Excellent	A 4
85~89		A- 3.7
82~84		B+ 3.3
78~81	良 Good	B 3
75~77		B- 2.7
72~74		C+ 2.3
68~71	中 Satisfactory	C 2
64~67		C- 1.5
60~63	及格 Passing	D 1
60以下	不及格 Fail	F 0

$$\text{平均学分绩点} = \frac{\sum (\text{课程学分} \times \text{所获学分绩点})}{\sum \text{课程学分}}$$

$$\text{Grade Points Average (GPA)} = \frac{\sum (\text{course credits} \times \text{grade points of the course})}{\sum \text{course credits}}$$

二、学时、学分标准 (Hours of Instruction and Credits)

1学时=45分钟；理论课程16学时=1学分；实验课程30学时=1学分；实践课程2周=1学分。

One class hour is 45 minutes. A student will receive one credit for satisfactorily completing sixteen (16) hours of instruction, and one credit for thirty (30) hours of laboratory work, and one credit for completing two weeks of practice course.

三、毕业日期 (Graduation Date)

成绩单中的毕业日期为学生预计毕业时间，如取得毕业证则为实际毕业时间。

The date on the academic transcript is the anticipated graduation date, and the actual graduation date is indicated on the student's diploma.

湖北省武汉市洪山区狮子山街1号 邮编：430070

电话：027-87281542 传真：027-87282023

No.1, Shizishan Street, Hongshan District, Wuhan, Hubei Province, 430070, P.R.China

Tel:86-27-87281542 Fax:86-27-87282023



姓名:卢攀忠
Name: Lu Panzhong

性别:男
Gender: Male

入学年月:2020年9月
Date of Attendance: September, 2020

院别:新媒体与传播学院
School: School of New Media and Communication
, Tianjin University

学号:2020245008
Student ID: 2020245008

层次:硕士
Level: Master

导师:张梅山
Supervisor:

专业:计算机技术
Major:

课程名称 Course	学分 Credit	学时 Hours	成绩 Grade
工程数学基础 Foundation of Engineering Mathematics	4.0	80	79
高级人工智能 Advanced Artificial Intelligence	2.0	32	96
中国特色社会主义理论与实践研究 Theory and Practice of Socialism with Chinese Characteristics	2.0	36	88
软件体系结构 Software Architecture	2.0	32	91
自然语言处理 Natural Language Processing	2.0	32	95
自然辩证法概论 Introduction to Dialectics of Nature	1.0	18	85
虚拟化与云计算 Virtualization and Cloud Computing	2.0	32	89
高等计算机网络 Advanced Computer Networks	2.0	32	81
信息检索与分析 Information Retrieval And Analysis	2.0	32	67
工程伦理 Engineering Ethics	1.0	20	68
工程应用英语 English for Engineering	2.0	40	73
物联网与创新设计 The Innovative Design of Internet of Things	2.0	32	89
中期考核 Mid-term Evaluation	1.0	0	98
专业实践 Professional Practice	6.0	0	100
文献阅读 Literature Reading	1.0	0	99.28
研究进展报告 Seminar Report	1.0	0	98.5
学科前沿讲座 Lectures on Advanced Research Topics	1.0	0	99
开题报告 Thesis Proposal	1.0	0	100
总计 Total	35.0	418	



验证网址 (Verify Addr):

<http://yjszm.tju.edu.cn:9080/>

验证码(S/N):

TJUB KIID LBMM MLBM FYC



天津大学研究生培养办公室 (盖章)

Tianjin University Graduate Education Office(Seal)

打印日期:2022-11-14

Date of Issued: November 14, 2022

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Summary of Research Projects

Presenter: Panzhong Lu (卢攀忠) November, 2024



Background



Research

Project



Summary

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Background

Education & Experience

Research

Extending phrase Grounding with Pronouns in Visual Dialogues

Westlake University (Apr. 2023 -- Now)

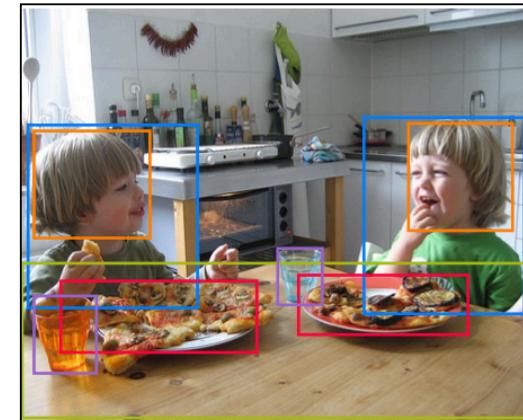
Research Assistant; Supervisor: Prof. Yue Zhang

Tianjin University (Sep. 2020 -- Jan. 2023)

M.E. in Computer Technology; Advisor: Prof. Meishan Zhang

Huazhong Agricultural University (Sep. 2016 -- Jun. 2020)

B.S. in Information and Computing Sciences; Grade: 90.52



C: Two kids are eating food at a table.

Q: What color hair do they have?

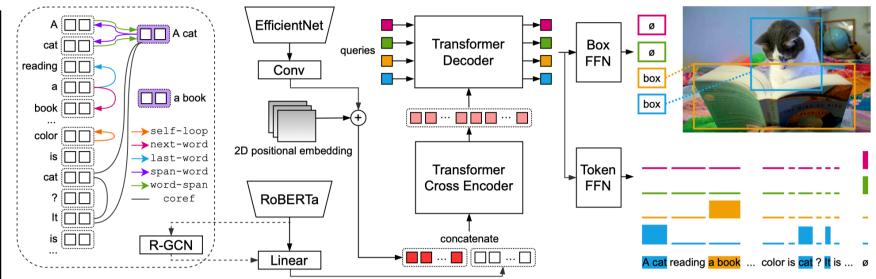
A: Dirty blonde.

Q: What type of food are they eating?

A: Pizza.

Q: Are they drinking anything?

A: Looks like water.



Model	Coref	F1	Recall@1		Recall@5		Recall@10	
			Overall	Pronoun	Phrase	Overall	Pronoun	Phrase
MDETR	-	43.35	50.15	39.94	57.18	67.35	52.13	65.04
MDETR + NounCoef	37.6	42.04	49.39	38.36	53.72	63.50	48.84	62.60
MDETR + CII-SpanBERT	65.0	62.45	64.45	64.45	65.38	72.52	61.99	66.51
MDETR + Gold ^t	100	47.54	58.79	41.91	59.30	70.52	53.69	66.67
MERGED-BOX-PROTOCOL								
MDETR	-	51.98	60.86	47.59	62.86	71.98	58.40	68.03
MDETR + NounCoef	37.6	51.04	62.14	45.60	62.01	72.45	56.79	67.03
MDETR + CII-SpanBERT	65.0	51.98	62.85	46.71	62.44	72.46	57.43	67.55
MDETR + Gold ^t	100	55.43	65.98	58.26	65.72	74.73	61.23	76.52
MERGED-BOX-PROTOCOL								
MDETR	-	51.98	60.86	47.59	62.86	71.98	58.40	68.03
MDETR + NounCoef	37.6	51.04	62.14	45.60	62.01	72.45	56.79	67.03
MDETR + CII-SpanBERT	65.0	51.98	62.85	46.71	62.44	72.46	57.43	67.55
MDETR + Gold ^t	100	55.43	65.98	58.26	65.72	74.73	61.23	76.52

Project

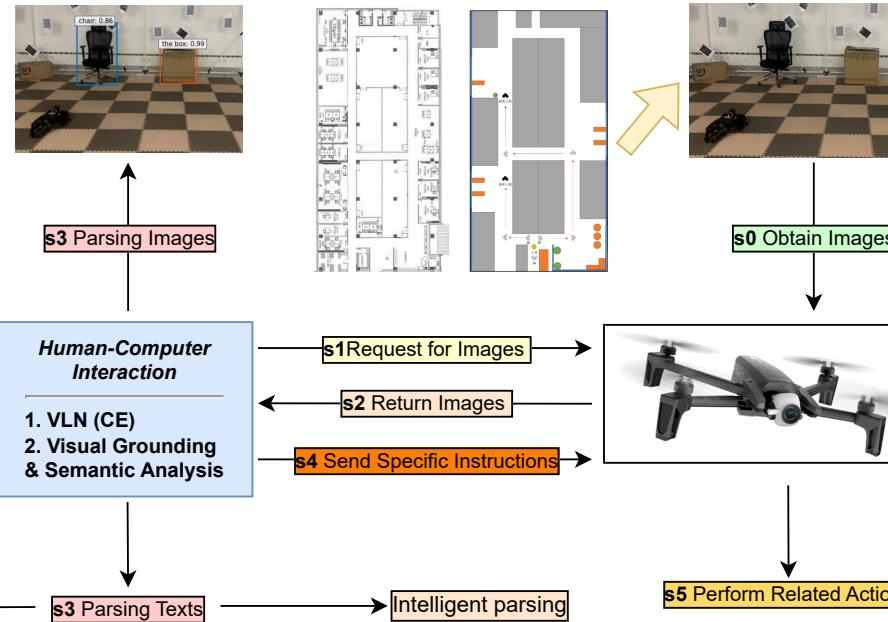
Visual Language Navigation (Using UAV)

Virtual Digital Man

Summary

Awards & Future Plans

Instruct1: Forward 2 meters.
Instruct2: Fly towards the chair and stop.
Instruct3: Fly towards the chair in front and stopped, then turned right 60 degrees to stop next to the box.



Publications & Patents

EMNLP x1 (1st author); ECCV x1; BIBM x1; others x2.
Patents x2; waiting for submission x2.

Awards & Achievements

National Encouragement Scholarship x2, Some Other Prizes;
Merit Student & Excellent Student Cadre.

Reserch Interest

Multimodal (NLP), Machine Learning, Robotics,
Human-Computer Interaction and Data Science.

Aspiration & Career Plans

Contributions to Community; Academical Position in University.