Luowei Zhou

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EDUCATION

University of Michigan Ann Arbor, Michigan, USA
Ph.D. program in Robotics *Sept. 2015 – Present*

- ***Research Interests:*** Multi-modal embedding (vision and language), video understanding, deep learning
- ***Courses:*** Advanced Computer Vision, Natural Language Processing, Machine Learning, Optimization
- ***Academics:*** Curriculum GPA: **4.00/4.00**

Nanjing University Nanjing, Jiangsu, China
Bachelor of Engineering in Automation *Sept. 2011 – Jun. 2015*

- ***Courses:*** Computer Vision, Artificial Intelligence, Advanced Programming Language, Data Structure
- ***Academics:*** Overall GPA: **91.8/100**, Major GPA: **93.0/100**

PUBLICATIONS

L. Zhou, Y. Zhou, J. J. Corso, R. Socher and C. Xiong, *"End-to-End Dense Video Captioning with Masked Transformer"*, CVPR 2018, in submission.

L. Zhou, C. Xu and J. J. Corso, "*Towards Automatic Learning of Procedures from Web Instructional Videos*", AAAI 2018, in press, **oral**. *AR: 11%; h5: 56*

L. Zhou, C. Xu, P. Koch and J. J. Corso, "*Watch What You Just Said: Image Captioning with Text-Conditional Attention*", ACM Multimedia (Thematic Workshops) 2017: 305-313.

L. Zhou, P. Yang, C. Chen and Y. Gao, "*Multi-agent Reinforcement Learning with Sparse Interactions by Negotiation and Knowledge Transfer*", IEEE Transactions on Cybernetics 2017, 47 (5): 1238 - 1250.
SCI IF: 7.38; h5: 73

L. Zhou, P. Yang and C. Chen, "*Multi-agent Reinforcement Learning with Sparse Interactions by Negotiation and Knowledge Transfer*", IJCAI (Workshops) 2016, **oral**.

L. Zhou, Y. Shi, J. Wang and P. Yang, "*A Balanced Heuristic Mechanism for Multi-robot Task Allocation of Intelligent Warehouses"*, Mathematical Problems in Engineering 2014: 1–10. *SCI IF: 0.80; h5: 39*

WORK EXPERIENCE

Salesforce Research (Metamind) Palo Alto, California, USA
Deep Learning Research Intern with Dr. Caiming Xiong and Dr. Richard Socher *May 2017 – Aug. 2017*

University of Michigan, EECS Ann Arbor, Michigan, USA
Graduate Research Assistant with Prof. Jason Corso *April 2016 – Present*

PROFESSIONAL ACTIVITIES

Co-organizer, CVPR 2018 Workshop on Fine-grained Instructional Video Understanding, with Jason Corso, Josef Sivic and Ivan Laptev (accpeted)
Reviewer, NIPS 2016, CVIU 2016, ICRA 2017, ITS 2017, TPAMI 2017
Volunteer, RSS 2016
Attendee, CVPR 2016, IJCAI 2016, ACM Multimedia 2017

RESEARCH EXPERIENCE

Dense-Captioning Events in Video and Temporal Action Proposal Salesforce Research
Supervisors: Dr. Caiming Xiong and Dr. Richard Socher *May 2017 – Aug. 2017*

- Introduced a Self-attention-based video captioning model and improved our previously proposed action/event proposal network by carefully-designed Temporal Convolutional Networks
- Proposed to bridge event proposal and captioning by differentiable visual mask and achieved SotA results

Large-scale Cooking Video Dataset for Procedure Learning and Recipe Generation University of Michigan
Supervisor: Prof. Jason Corso *Sept. 2016 – present*

- Introduced an event proposal network that can temporally localize procedure steps in web instructional videos and capture the structure of undergoing events in the videos
- Collected YouCook2, which contains 2000 long videos with temporally localized recipe sentence annotations
- Current focuses: i) weakly supervised visual grounding from language description, ii) open-domain video event retrieval from language query

Text-conditional Visual Captioning with Guiding Long Short-Term Memory University of Michigan
Supervisor: Prof. Jason Corso *Mar. 2016 – Nov. 2016*

- Proposed an encoder-decoder image captioning method though explicit text-conditional image guidance
- Extended the work to video captioning by leveraging audio features for extra guidance and achieved top performance in 2016 ACM Multimedia Video-to-Text Challenge

End-to-End Grasping with Deep Reinforcement Learning University of Michigan
Supervisor: Prof. Satinder Singh *Sept. 2015 – Apr. 2016*

- Applied SotA Deep RL algorithm named Deep Q-network (DQN) to robot grasping tasks
- Built an API between physics engine MuJoCo and the DQN module

Research on Multi-Agent Reinforcement Learning with Sparse Interactions Nanjing University
Supervisors: Prof. Chunlin Chen and Dr. Pei Yang *Dec. 2014 – Jul. 2015*

- Incorporated the concept of equilibrium to traditional sparse-interaction-based MARL algorithms
- Decomposed the MARL problem from behavioristics prospective and proposed to transfer the knowledge from the environment and pre-trained coordination Q-value tables to the joint-state Q table
- First to apply MARL with sparse interactions in the real-world scenario (intelligent warehouse systems)

Multi-Robot Task Allocation and Path Planning in Dynamic Environments Nanjing University
Supervisor: Dr. Pei Yang *Nov. 2013 – Jul. 2014*

- Proposed a Balanced Heuristic Mechanism to balance task allocation in multi-robot systems
- Built an intelligent warehouse simulator from scratch using C/OpenGL for the experiments

HONORS AND AWARDS

Outstanding Winner Awards (**0.2%**), Mathematical Contest in Modeling (MCM) 2013
Sienhua New and Tsu Way Shen Memorial Award (**Top 1**), of University of Michigan 2015
Best Undergrad Thesis (**Top 1**), of Jiangsu Province 2015
National Scholarship (**1%**), of Nanjing University 2012

PROFICIENCY AND SKILLS

Technical Skills: PyTorch/Torch, Python, C/C++, Linux, Git, LaTeX, Matlab, Caffe, HTML
Languages: English (proficient) and Chinese (native)