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Daqing LIU

Research Scientist

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I am a research scientist at JD Explore Academy, JD.com Inc., China. My primary research interest is Multi-Modality Learning (MML), including multi-modality understanding, retrieval, and generation.

Education

Ph.D in Control Science and Engineering, *University of Science and Technology of China* 2016.09 — 2021.06
B.E in Automation (Excellent Engineers), *Chang'an University* 2012.09 — 2016.06

Work Experience

JD.com Inc. **Beijing, China**
Research Scientist of JD Explore Academy *2022.3 — Present*

- Multi-modality Understanding, including visual grounding, temporal grounding, visual qa, etc.
- Multi-modality Retrieval, including cross-modal retrieval, composed image retrieval, fast image retrieval, etc.
- Multi-modality Generation, including image-to-text, text-to-image, layout-to-image, etc.

Doctoral Management Trainee *2021.8 — Present*

- Job-rotation on JD Retail, JD Logistics, JD Technology, and JD Health
- Regular participation in company technical seminars and academic sharing

Nanyang Technological University **Singapore**
Research Assistant *2018.05 — 2019.05*

- Image Captioning, achieved 6.2% improvement on CIDEr, highest rank *4th* on the COCO leader-board
- Visual Grounding, proposed the *first* tree-based reasoning model for visual grounding

Publications

Full list in Google Scholar. *: co-first authors, #: (co-)supervised students, ✉: corresponding author

[13] **Semantically-Consistent Dynamic Blurry Image Generation for Image Deblurring**
Zhaohui Jing, Youjian Zhang, Chaoyue Wang, **Daqing Liu**, Yong Xia
*ACM International Conference on Multimedia (**MM**), 2022*

[12] **Modeling Image Composition for Complex Scene Generation**
Zuopeng Yang#, **Daqing Liu***, Chaoyue Wang, Jie Yang, Dacheng Tao
*IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022*

[11] **TransVG++: End-to-End Visual Grounding with Language Conditioned Vision Transformer**
Jiajun Deng, Zhengyuan Yang, **Daqing Liu**, Tianlang Chen, Wengang Zhou, Yanyong Zhang, Houqiang Li, Wanli Ouyang
arXiv preprint, 2022

[10] **SemMAE: Semantic-Guided Masking for Learning Masked Autoencoders**
Gang Li, Heliang Zheng, **Daqing Liu**, Bing Su, Changwen Zheng
arXiv preprint, 2022

[9] **Compact Bidirectional Transformer for Image Captioning**
Yuanen Zhou#, Zhenzhen Hu, **Daqing Liu**, Huixia Ben, Meng Wang
arXiv preprint, 2022

[8] **Language-Conditioned Region Proposal and Retrieval Network for Referring Expression Comprehension**
Yanwei Xie#, **Daqing Liu**, Xuejin Chen, Zheng-Jun Zha
ICMR Workshop on Multi-Modal Pre-Training for Multimedia Understanding, 2021

[7] **Learning to Discretely Compose Reasoning Module Networks for Video Captioning**
Ganchao Tan#, **Daqing Liu***, Meng Wang, Zheng-Jun Zha
*International Joint Conference on Artificial Intelligence (**IJCAI**), 2020. **(Oral, Acceptance Rate: 12.6%)***

[6] **More Grounded Image Captioning by Distilling Image-Text Matching Model**
Yuanen Zhou#, Meng Wang, **Daqing Liu**, Zhenzhen Hu, Hanwang Zhang
*IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020*

[5] **Joint Visual Grounding with Language Scene Graphs**
Daqing Liu, Hanwang Zhang, Zheng-Jun Zha, Meng Wang, Qianru Sun
arXiv preprint, 2019

[4] **Learning to Assemble Neural Module Tree Networks for Visual Grounding**
Daqing Liu, Hanwang Zhang, Zheng-Jun Zha, Feng Wu
*IEEE International Conference on Computer Vision (**ICCV**), 2019.* ***(Oral, Acceptance Rate: 4.3%)***

[3] **Learning to Compose and Reason with Language Tree Structures for Visual Grounding**
Richang Hong, **Daqing Liu**✉, Xiaoyu Mo, Xiangnan He, Hanwang Zhang
*IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), 2019.* ***(Impact Factor: 17.730)***

[2] **Context-Aware Visual Policy Network for Fine-Grained Image Captioning**
Zheng-Jun Zha, **Daqing Liu**✉, Hanwang Zhang, Yongdong Zhang, Feng Wu
*IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), 2019.* ***(Impact Factor: 17.730)***

[1] **Context-Aware Visual Policy Network for Sequence-Level Image Captioning**
Daqing Liu, Zheng-Jun Zha, Hanwang Zhang, Yongdong Zhang, Feng Wu
*ACM International Conference on Multimedia (**MM**), 2018.* ***(Oral, Acceptance Rate: 8.5%)***

Honors

Outstanding Graduates, *University of Science and Technology of China*	2021.06
Scholarship Award, *Huawei Technologies Co., Ltd.*	2019.11
Scholarship Award, *China Aerospace and Technology Corporation*	2018.12
National Second Prize, *The 14th "Challenge Cup" National University Extracurricular Scientific Works Competition*	2015.11
Pivot of Merit Student, *Chang'an University*	2014.11
Winning Prize, *The 9th "Freescale Cup" National University Intelligent Car Competition*	2014.07

Skills

Tools and Languages	Python, C++/C, Matlab, LaTeX, Git, MarkDown
Framework	PyTorch, TensorFlow, Torch, Caffe
Communication	English, Chinese