Jiayuan Mao

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Publication

The Neuro-Symbolic Concept Learner : Interpreting Scenes, Words, and Sentences From Natural Supervision — **ICLR 2019 (Oral)**

Jiayuan Mao, Chuang Gan, Pushmeet Kohli, Joshua B. Tenenbaum, Jiajun Wu

Concept Learning

Neural Logic Machines — **ICLR 2019**

Honghua Dong*, Jiayuan Mao*, Tian Lin, Chong Wang, Lihong Li, Denny Zhou

Neural Inductive Logic

Unified Visual-Semantic Embeddings : Bridging Vision and Language with Structured Meaning Representations — **CVPR 2019, In Submission**

Hao Wu*, Jiayuan Mao*, Yufeng Zhang, Yuning Jiang, Lei Li, Wei-Ying Ma

Visual-Semantic Embeddings

Neural Phrase-to-Phrase Machine Translation — **ArXiv Preprint**

Jiangtao Feng, Lingpeng Kong, Po-Sen Huang, Chong Wang, Da Huang, Jiayuan Mao, Kan Qiao, Dengyong Zhou

Neural Machine Translation

Acquisition of Localization Confidence for Accurate Object Detection — **ECCV 2018 (Oral)**

Borui Jiang*, Ruixuan Luo*, Jiayuan Mao*, Tete Xiao, Yuning Jiang

Object Detection

Learning Visually-Grounded Sementics from Contrastive Adversarial Samples — **COLING 2018**

Haoyue Shi*, Jiayuan Mao*, Tete Xiao*, Yuning Jiang, Jian Sun

Visual-Semantic Embeddings | Adversarial Training

Universal Agent for Disentangling Environments and Tasks — **ICLR 2018**

Jiayuan Mao, Honghua Dong, Joseph J. Lim

Transfer Learning | Deep Reinforcement Learning

What Can Help Pedestrian Detection ? — **CVPR 2017**

Jiayuan Mao*, Tete Xiao*, Yuning Jiang, Zhimin Cao

Transfer Learning | Object Detection

Education and Research Experience

2014-Current | **Tsinghua University**
B.E. in Computer Science

- Special Pilot Computer Science Class (Yao Class)
- Institute for Interdisciplinary Information Sciences
- Member of Natural Language Processing laboratory (THUNLP).

2018-Current | **COCOSCI Group, Massachusetts Institute of Technology**
Visiting Student, Advisor : Joshua B. Tenenbaum

- Neural-symbolic concept learning : interpreting scenes, words, and sentences from natural supervision. (ICLR 2019, in submission)
- Learning to describe natural image patterns with programs. (In preparation)

2018-Current | **Bytedance AI Lab**
Research Intern, Mentor : Yuning Jiang

- Learning a visual-semantic space that unifies the embeddings of concepts at different levels : objects, attributes, relations and full scenes. (CVPR 2019, in submission)

2018 | **Google AI China Center**
Research Intern, Mentor : Denny Zhou, Chong Wang

- Learning First-Order Logic Rules using Neural Networks. (ICLR 2019, in submission)
- Neural phrase-to-phrase machine translation.

2017 | **CLVR Lab, University of Southern California**
Visiting Student, Advisor : Joseph J. Lim

- Transfer learning for deep reinforcement learning. (ICLR 2018)

2015-2018 | **Megvii Research**
Research Intern, Mentor : Yuning Jiang

- Knowledge transfer among vision tasks for object detection. (CVPR 2017)
- Acquisition of localization confidence for accurate object detection. (ECCV 2018)
- Learning visually-grounded semantics from contrastive adversarial samples. (COLING 2018)

Academic Service

Reviewer : CVPR 2019.

Teaching

Teaching Assistant : Object-Oriented Programming, 2017 Spring, Tsinghua University.

Open-sourced Projects

Synchronized-BatchNorm-PyTorch : https ://github.com/vacancy/Synchronized-BatchNorm-PyTorch Synchronized Batch Normalization implementation in PyTorch. 338 Stars on GitHub.

PreciseRoIPooling-PyTorch : https ://github.com/vacancy/PreciseRoIPooling Precise RoI Pooling with coordinate gradient support, proposed in the paper "Acquisition of Localization Confidence for Accurate Object Detection". 367 Stars on GitHub.

SceneGraphParser https ://github.com/vacancy/SceneGraphParser A python toolkit for parsing captions (in natural language) into scene graphs (as symbolic representations). 18 Stars on GitHub.