TANG, HAO

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EDUCATION

Cornell University, Ithaca, NY, United States *08/21 - Present*
Ph.D. in Computer Science
Advisor: Kevin Ellis

Shanghai Jiao Tong University, Shanghai, China *09/17 - 03/21*
M.S. in Computer Science and Engineering (with honors)
Advisor: Bao-Liang Lu

Shanghai Jiao Tong University, Shanghai, China *09/13 - 06/17*
B.S. in Computer Science and Engineering (with honors)

SELECTED TALKS

Towards Sample Efficient Agents through Programmatic Inductive Biases
@ *Microsoft Research Lab – Montréal*, May 2024
@ *MIT Theory-RL Reading Group*, June 2024
@ *Mitsubishi Electric Research Laboratories Computer Vision Reading Group*, July 2024
@ *MIT Learning in Intelligent Systems (LIS) Group*, August 2024

LLM for (Nonlinear) Loop Invariant Synthesis
@ *University of Toronto PLSE Group*, July 2024

From perception to programs: regularize, overparameterize, and amortize (ROAP)
@ *PLDI Symposium on Machine Programming (PLDI-MAPS)*, June 2022

Towards Scale-Invariant Graph-related Problem Solving by Iterative Homogeneous GNNs (IterHomoGNN)
@ *The 18th China Symposium on Machine Learning and Applications (MLA)*, November 2020

PUBLICATIONS

WorldCoder, a Model-Based LLM Agent: Building World Models by Writing Code and Interacting with the Environment
Hao Tang, Darren Key, Kevin Ellis
Annual Conference on Neural Information Processing Systems (NeurIPS), 2024

Code Repair with LLMs gives an Exploration-Exploitation Tradeoff
Hao Tang, Keya Hu, Jin Peng Zhou, Sicheng Zhong, Wei-Long Zheng, Xujie Si, Kevin Ellis
Annual Conference on Neural Information Processing Systems (NeurIPS), 2024

From perception to programs: regularize, overparameterize, and amortize
Hao Tang, Kevin Ellis
International Conference on Machine Learning (ICML), 2023

Towards Scale-Invariant Graph-related Problem Solving by Iterative Homogeneous GNNs
Hao Tang, Zhiao Huang, Jiayuan Gu, Bao-Liang Lu, Hao Su
Annual Conference on Neural Information Processing Systems (NeurIPS), 2020

Refactoring Policy for Compositional Generalizability using Self-Supervised Object Proposals
Tongzhou Mu*, Jiayuan Gu*, Zhiwei Jia, **Hao Tang**, Hao Su
Annual Conference on Neural Information Processing Systems (NeurIPS), 2020

Belief Propagation Neural Networks
Jonathan Kuck, Shuvam Chakraborty, **Hao Tang**, Rachel Luo, J. Song, A. Sabharwal, Stefano Ermon
Annual Conference on Neural Information Processing Systems (NeurIPS), 2020

Emotion Recognition using Multimodal Residual LSTM Network
Jiaxin Ma*, **Hao Tang***, Wei-Long Zheng, Bao-Liang Lu
ACM International Conference on Multimedia (ACM Multimedia), 2019

Multimodal emotion recognition using deep neural networks
Hao Tang, Wei Liu, Wei-Long Zheng, Bao-Liang Lu
International Conference on Neural Information Processing (ICONIP), 2017

EMPLOYMENT

Graduate Researcher *08/21 - Present*
Computer Science Department, Cornell University, NY, United States
- Neuro-Symbolic Program Synthesis, Model-based Agents.

Research Intern *05/24 - 08/24*
Mitsubishi Electric Research Laboratories, MA, United States
- Program synthesis for interpretable video understanding and prediction.

Remote Research Assistant *03/20 - 12/20*
Stanford University, CA, United States
- Learning to learn, Learn better belief propagation with GNNs.

Visiting Graduate *07/19 - 03/20*
University of California, San Diego, CA, United States
- Generalizable GNNs w.r.t. graph scales by encoding iterative programmatic structure.

Research Intern *12/18 - 05/19*
OMRON SINIC X Corporation, Tokyo, Japan
- Differentiable structured attentions, Structured sparsity, Graph representation learning.

Research Assistant *06/16 - 03/21*
Shanghai Jiao Tong University, Shanghai, China
- State-of-the-arts on EEG-based multimodel emotion recognition.

Research Intern *07/15 - 09/15*
Information Technology R&D Center of Mitsubishi Electric, Fujisawa, Japan
- Developed a Chinese intention understanding module for the dialog system in rice cookers.

OPEN SOURCE CONTRIBUTIONS

Pytorch: contributor, 4 commits

Tensorflow: contributor, 1 commit

Pytorch-Geometric (Pytorch-Scatter backend): contributor, 2 commits

gfl (graph-fused lasso solver): contributor, 4 commits

parallel-cut-pursuit (minimizes functionals structured over a weighted graph): contributor, 1 commit

HONORS AND AWARDS

- Top Reviewer of NeurIPS, 2022
- Outstanding Graduate of Shanghai Jiao Tong University (1%), 2017, 2021
- Scholarship of Academic Excellence (5%), 2013, 2014, 2015, 2017, 2018, 2019
- Crash Company Scholarship (3%), 2013, 2014, 2015