

Zhaocheng Zhu

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EDUCATION

Mila - Québec AI Institute / Université de Montréal, Canada

Sep. 2019 - Present

Ph.D. in Computer Science

- Graph Representation learning, Knowledge Graphs, Drug Discovery, Machine Learning Systems
- Advisor: Jian Tang

Mila - Québec AI Institute / Université de Montréal, Canada

Sep. 2018 - Aug. 2019

M.Sc. in Computer Science, transferred to Ph.D.

- Graph Representation learning, Machine Learning Systems
- Advisor: Jian Tang

Peking University, China

Sep. 2014 - July 2018

B.S. in Computer Science (with honors)

- Natural Language Processing, Unsupervised Representation Learning, Word Semantics
 - Computer Vision, Object Detection
- Advisor: Junfeng Hu
- Thesis Advisor: Yizhou Wang, Jifeng Dai (Microsoft Research Asia)

INTERNSHIP

Microsoft Research Asia, Beijing, China

Sep. 2017 - May 2018

- Video object detection with optical flow and temporal context
 - Reproduction of Mask R-CNN for keypoint detection
 - Towards accurate localization in object detection
- Mentor: Jifeng Dai

Carnegie Mellon University, Pittsburgh, United States

July 2017 - Sep. 2017

- Stacked local linear explanations for deep neural networks
- Advisor: Pradeep Ravikumar

Mitsubishi Information Technology R&D Center, Kamakura, Japan

July 2016 - Aug. 2016

- Dialog State Tracking Challenge 5
 - Chinese language understanding for navigation systems
- Mentor: Yusuke Koji

PUBLICATIONS

Learning to Efficiently Propagate for Reasoning on Knowledge Graphs

Zhaocheng Zhu^{*}, Xinyu Yuan^{*}, Louis-Pascal Xhonneux, Ming Zhang, Maxime Gazeau, Jian Tang.
arXiv preprint arXiv:2206.04798, 2022.

PEER: A Comprehensive and Multi-Task Benchmark for Protein Sequence Understanding

Minghao Xu, Zuobai Zhang, Jiarui Lu, **Zhaocheng Zhu**, Yangtian Zhang, Chang Ma, Runcheng Liu, Jian Tang. *arXiv preprint arXiv:2206.02096*, 2022.

Neural-Symbolic Models for Logical Queries on Knowledge Graphs

Zhaocheng Zhu, Mikhail Galkin, Zuobai Zhang, Jian Tang. In *International Conference on Machine Learning*, 2022.

TorchDrug: A Powerful and Flexible Machine Learning Platform for Drug Discovery

Zhaocheng Zhu, Chence Shi, Zuobai Zhang, Shengchao Liu, Minghao Xu, Xinyu Yuan, Yangtian Zhang, Junkun Chen, Huiyu Cai, Jiarui Lu, Chang Ma, Runcheng Liu, Louis-Pascal Xhonneux, Meng Qu, Jian Tang. *arXiv preprint arXiv:2202.08320*, 2022.

Neural Bellman-Ford Networks: A General Graph Neural Network Framework for Link Prediction

Zhaocheng Zhu, Zuobai Zhang, Louis-Pascal Xhonneux, Jian Tang. In *Conference on Neural Information Processing Systems*, 2021. Rank 12/39 in the link prediction task of OGB-LSC.

KEPLER: A Unified Model for Knowledge Embedding and Pre-trained Language Representation

Xiaozhi Wang, Tianyu Gao, **Zhaocheng Zhu**, Zhengyan Zhang, Zhiyuan Liu, Juanzi Li, Jian Tang. In *Transactions of the Association for Computational Linguistics*, 2021.

GraphAF: A Flow-based Autoregressive Model for Molecular Graph Generation

Chence Shi*, Minkai Xu*, **Zhaocheng Zhu**, Weinan Zhang, Ming Zhang, Jian Tang. In *International Conference on Learning Representations*, 2020

Self-Adaptive Network Pruning

Jinting Chen, **Zhaocheng Zhu**, Cheng Li, Yuming Zhao. In *International Conference on Neural Information Processing*, 2019. (Best Student Paper Finalist)

GraphVite: A High-Performance CPU-GPU Hybrid System for Node Embedding

Zhaocheng Zhu, Shizhen Xu, Meng Qu and Jian Tang. In *The World Wide Web Conference*, pp. 2494-2504, 2019.

Saliency Supervision: An Intuitive and Effective Approach for Pain Intensity Regression

Conghui Li, **Zhaocheng Zhu** and Yuming Zhao. In *International Conference on Neural Information Processing*, pp. 455-464, 2018.

Context Aware Document Embedding

Zhaocheng Zhu and Junfeng Hu. *arXiv preprint arXiv:1707.01521*, 2017.

Dialog State Tracking with Attention-based Sequence-to-Sequence Learning

Takaaki Hori, Hai Wang, Chiori Hori, Shinji Watanabe, Bret Harsham, Jonathan Le Roux, John R Hershey, Yusuke Koji, Yi Jing, **Zhaocheng Zhu** and Takeyuki Aikawa. In *IEEE Spoken Language Technology Workshop (SLT)*, pp. 552-558, 2016. (Runner up at Dialog State Tracking Challenge 5)

SELECTED PROJECTS

TorchDrug: A Powerful and Flexible Machine Learning Platform for Drug Discovery

(leader of TorchDrug team)

Machine learning development platform for drug discovery in PyTorch. Support 5 tasks, more than 20 models. Over 880 stars and 9,400 downloads.

Featured in *PyTorch ecosystem*. Supported by NVIDIA Applied Research Accelerator Program.

<https://torchdrug.ai> <https://github.com/DeepGraphLearning/torchdrug>

GraphVite: A General and High-Performance Graph Embedding System for Various Applications (leader of GraphVite team)

General and high-performance graph embedding system. Support 3 applications, 10 models and more than 40 baseline benchmarks. Over 1,000 stars and 4,900 downloads.

<https://graphvite.io> <https://github.com/DeepGraphLearning/graphvite>

Literature of Deep Learning for Graphs (with Meng Qu and Weiping Song)

Comprehensive paper list of deep learning for graphs. Over 2,900 stars.

<https://github.com/DeepGraphLearning/LiteratureDL4Graph>

HONORS AND AWARDS

Tuition Fee Exemption Scholarships, Université de Montréal	2019 - 2021
Outstanding Graduate Student, Peking University	2018
Top Talent Class of EECS, Peking University	2016 - 2018
Outstanding Research Award, Peking University	2016
Kwang-Hua Scholarship, Peking University	2016
Honorable Mention, Mathematical Contest in Modeling (MCM)	2016
Merit Student, Peking University	2015
Tung OCCL Scholarship, Peking University	2015
Honorable Mention, Mathematical Contest in Modeling (MCM)	2015
Group Champion, Peking University Debate Competition for Freshman	2014

SERVICE

Reviewer, NeurIPS 2022	
Reviewer, ICML 2022	
Reviewer, TKDE 2022	
Reviewer, GNNs Workshop, MLSys 2021	
Reviewer, DLG Workshop, KDD 2020	
Reviewer, GRL Workshop, NeurIPS 2019	
League branch secretary, Society of Photography, Peking University	Sep. 2017 - June 2018
Leader of story portrait group, Society of Photography, Peking University	Apr. 2015 - Aug. 2017
Member of organizers & news team, HackPKU, Peking University	Apr. 2016

SKILLS

Programming Languages:

- Proficient: C/C++, Python, Pascal/Object Pascal
- Capable: MATLAB, SQL, Bash, Assembly, HTML/CSS

Frameworks: CUDA, PyTorch, MXNet, Keras, TensorFlow

Toolchains: Git, \LaTeX , GDB, CMake, Conda(build), Pip(build), Photoshop

Languages: Mandarin Chinese(native), English(proficient), French(beginner)

Open-Source Contribution: PyTorch-Geometric, Gensim, PyKEEN, OpenFold

Good at designing and organizing large code bases (> 20k lines), and accelerating deep learning models.