

# Zhaocheng Zhu

6666 St Urbain St, Montréal, QC H2S 3H1, Canada

(+1)514-994-9516 ◊ <https://kiddozhu.github.io> ◊ [zhaocheng.zhu@umontreal.ca](mailto:zhaocheng.zhu@umontreal.ca)

## EDUCATION

---

**Mila - Québec AI Institute / Université de Montréal**, Canada *Sep. 2019 - Present*

Ph.D. in Computer Science (expected graduation: 2023)

- 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
- Advisor: Junfeng Hu
- Computer Vision, Object Detection
- 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

## TUTORIALS

---

**Reasoning on Knowledge Graphs: Symbolic or Neural?**

Meng Qu, **Zhaocheng Zhu**, Jian Tang. In *Proceedings of the AAAI Conference on Artificial Intelligence*, 2022.

## PUBLICATIONS

---

**Inductive Logical Query Answering in Knowledge Graphs**

Mikhail Galkin, **Zhaocheng Zhu**, Hongyu Ren, Jian tang. Accepted by *Conference on Neural Information Processing Systems*, 2022.

**Learning to Efficiently Propagate for Reasoning on Knowledge Graphs**

**Zhaocheng Zhu**<sup>\*</sup>, Xinyu Yuan<sup>\*</sup>, 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. Accepted by *Conference on Neural Information Processing Systems (Datasets and Benchmarks Track)*, 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*, 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*, 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)*, 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 900 stars and 13,000 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 5,000 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	<i>2019 - 2021</i>
Outstanding Graduate Student, Peking University	<i>2018</i>
Top Talent Class of EECS, Peking University	<i>2016 - 2018</i>
Outstanding Research Award, Peking University	<i>2016</i>
Kwang-Hua Scholarship, Peking University	<i>2016</i>
Honorable Mention, Mathematical Contest in Modeling (MCM)	<i>2016</i>
Merit Student, Peking University	<i>2015</i>
Tung OCCL Scholarship, Peking University	<i>2015</i>
Honorable Mention, Mathematical Contest in Modeling (MCM)	<i>2015</i>
Group Champion, Peking University Debate Competition for Freshman	<i>2014</i>

## **SERVICE**

---

Reviewer, NeurIPS 2022	
Reviewer, ICML 2022	
Reviewer, TKDE 2022	
Mentor, Buddy Program for New Students, Mila	<i>2019 - 2021</i>
Reviewer, GNNs Workshop, MLSys 2021	
Reviewer, DLG Workshop, KDD 2020	
Teaching Assistant, Machine Learning II, HEC Montréal	<i>Winter 2020</i>
Reviewer, GRL Workshop, NeurIPS 2019	
League branch secretary, Society of Photography, Peking University	<i>Sep. 2017 - June 2018</i>
Leader of story portrait group, Society of Photography, Peking University	<i>Apr. 2015 - Aug. 2017</i>
Member of organizers & news team, HackPKU, Peking University	<i>Apr. 2016</i>

## **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, L<sup>A</sup>T<sub>E</sub>X, 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.