YIN Haoteng 殷浩騰

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Education

- **Purdue University** — West Lafayette, IN
  Ph.D. in Machine Learning; Department of Computer Science — *2019 – 2024 (expected)*
- **Peking University** — Beijing, P.R. China
  MPhil in Data Science; Academy for Advanced Interdisciplinary Studies — *2016 – 2019*
- **Shandong University** — Ji'nan, P.R. China
  BEng in Computer Science and Technology; Taishan College* (Honors School) — *2012 – 2016*
  BEcon in Finance; School of Economics — *2014 – 2016*

*** Top-notch Undergraduate Training Program by Ministry of Education, P.R. China**

Research Interests

- Machine Learning and Graph Representation Learning
  Topics in Large-scale Graph Representation Learning; Scalable and Parallel Algorithms on Graphs; Algorithm System Co-design; Spatiotemporal Data Analysis; Trustworthy ML (fairness, location privacy).

Publications & Manuscripts

- **Haoteng Yin**, Muhan Zhang, Jianguo Wang, Pan Li. SUREL+: Moving from Walks to Sets for Scalable Subgraph-based Graph Representation Learning. VLDB'23, **Under Revision**
- **Haoteng Yin**, Muhan Zhang, Yanbang Wang, Jianguo Wang, Pan Li. Algorithm and System Co-design for Efficient Subgraph-based Graph Representation Learning. *Proceedings of the VLDB Endowment 15(11): 2788-2796.* DOI: 10.14778/3551793.3551831(**VLDB'22**)
- Rongzhe Wei, **Haoteng Yin**, Junteng Jia, Austin R. Benson, Pan Li. Understanding Non-linearity in Graph Neural Networks from the Bayesian-Inference Perspective. *Advances in Neural Information Processing Systems 35* (**NeurIPS'22**)
- Haorui Wang, **Haoteng Yin**, Muhan Zhang, Pan Li. Equivariant and Stable Positional Encoding for More Powerful Graph Neural Networks. *International Conference on Learning Representations* (**ICLR'22**)
- **Haoteng Yin**, Yanbang Wang, Pan Li. Revisiting graph neural networks and distance encoding from a practical view. *The 5th International Workshop on Deep Learning on Graphs* (**DLG-AAAI'21**)
- Bing Yu*, **Haoteng Yin***, Zhanxing Zhu. Spatio-Temporal Graph Convolutional Networks: A Deep Learning Framework for Traffic Forecasting. *The 27th International Joint Conference on Artificial Intelligence* (**IJCAI'18**). Main track. (* equal contribution)
- **YIN Haoteng** and LIU Yang. Semantic analysis of spatial temporal trajectory in LBSNs. (in Chinese) *SCIENTIA SINICA Informationis 47(8), 1051-1065(2017).* DOI: 10.1360/N112016-00310 (**Best Paper Award**)
- Prasita Mukherjee, **Haoteng Yin**, Susheel Suresh, Tiark Rompf. OCTAL: Graph Representation Learning for LTL Model Checking. *arXiv preprint arXiv:2207.11649*
- Bing Yu*, **Haoteng Yin***, Zhanxing Zhu. ST-UNet: A Spatio-Temporal U-Network for Graph-structured Time Series Modeling. *arXiv preprint arXiv:1903.05631*

Professional Service

- Graduate Teaching Assistant - CS242, CS38003, CS490-LDA, CS590-DE I&II — *Aug. 2019 - May. 2021*
- Journal/Conference Reviewer — *Dec. 2018 -*
  - ACM Transactions on Spatial Algorithms and Systems
  - IEEE Transactions on Big Data, Cybernetics, Emerging Topics in Computing, Intelligent Transportation Systems, Signal Processing
  - ICML'22-23, WSDM'23, NeurIPS'22, WWW'22, LoG'22, CISS'23, IEEE SPAWC'21
- Student Volunteer - The International Machine Learning Society — *Jul. 2018*

Technical Skills

- **Languages**: Chinese (native), English (professional working proficiency, OEPT certified)
- **Programming**: Proficient in Python/C, PyTorch, OpenMP, LaTeX, Git
  Experienced in C++, TensorFlow, Java, Julia, R, MATLAB

Research Experience

- **Purdue University** — West Lafayette, IN
  Graduate Assistantship — *Aug. 2019 - Current*
  - **Efficient and Scalable Subgraph-based Graph Representation Learning (SGRL)**
    Research Project (supported by GCoM@CS, Purdue & JPMorgan Chase), under the supervision of Prof. Pan Li. Design novel frameworks SUREL/SUREL+ for scalable subgraph-based GRL through algorithm and system co-design. A decoupled learning paradigm (walk- and set-based subgraph) is proposed to learn subgraphs, which breaks the computational bottleneck and enables efficient training and inference for large-scale link / relation / higher-order prediction tasks.
- **LIX, École Ploytechnique & Inria** — Palaiseau, France
  Research Intern — *Jun. 2018 - Sept. 2018*
  - **Machine Learning Attacks to Location Privacy**
    Research Project (supported by team Comète, EP), under the supervision of Prof. Catuscia Palamidessi. Developed a model of adversary that uses machine learning algorithms to capture patterns of users from perturbed trajectory data, which are gathered from location-based services and protected by a privacy mechanism, and then performs inference attacks to measure the vulnerability of the mechanism.
- **Center for Data Science, Peking University** — Beijing, P.R. China
  Graduate Research Assistant — *Jan. 2017 - Aug. 2019*
  - **Traffic Prediction with Deep Spatial Temporal Graph Neural Networks**
    Research Project (supported by Deep Learning Lab, PKU), under the supervision of Prof. Zhanxing Zhu. Design a deep learning framework STGCN to predict traffic time series, which coherently models the topology of road networks and captures periodic traffic patterns through spatiotemporal convolutional blocks. It has been widely used as a SOTA graph machine learning model for transportation research (over 2,000 citations).

Selected Honors & Awards

- The Top Reviewer Award (8%) for NeurIPS'22 — *Oct. 2022*
- Graduate School Summer Research Grants, Purdue University — *Mar. 2021*
- Academic Excellence Scholarship, Peking University (∼8%) — *Oct. 2016, 2017, 2018*
- The 2nd DiDi-IEEE Elite Forum Extraordinary Potential Award (2/39) — *May. 2018*
- École Polytechnique International Student (Intern) Fellowship — *Mar. 2018*
- The Most Technical Difficulty Award (Team Leader), Schlumberger HackPKU — *May. 2017*
- Guanghua-Yintai PKU Social Innovation DO Camp Scholarship (€1,600) — *Jan. 2017*
- The 5th National Conference of Social Media Processing the Best Paper Award (1/25) — *Oct. 2016*
- Taishan College International Study Scholarship (¥33,000) — *Jun. 2015*