

JINYUAN FANG

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Education

- **Sun Yat-sen University** Guangzhou, China
Master Student, Computer Science and Technology 09/2019 - Present
Supervisor: Prof. Shangsong Liang
GPA: 4.1 / 5.0
- **Sun Yat-sen University** Guangzhou, China
Bachelor Degree, Information Management and Information Systems 09/2015 - 06/2019
GPA: 4.1 / 5.0

Research Interests

- **Machine Learning on Graphs:**
 - Extending Graph Neural Networks (GNNs) to deal with graph learning tasks on homogeneous and heterogeneous graphs such as representation learning, node classification, link prediction and attribute inference.
 - Studying adversarial attack and defense methods on homogeneous and multi-relational graphs to improve the robustness of graph machine learning methods.
- **Bayesian Graphical Models:**
 - Combining Bayesian graphical models and variational inference method to enhance graph learning and continual learning.
 - Developing kernel functions and learning methods to improve the performance and robustness of Gaussian Process (GP) on different types of graphs.

Research Projects

- **Sun Yat-sen University** Guangzhou, China
Master Student, supervised by Prof. Shangsong Liang 09/2018 - Present
 - **SCAN:** Worked on the semi-supervised representation learning problem of heterogeneous graphs and implemented a variational framework to learn the representations in a semi-supervised way. The outcome of this project have been accepted in NeurIPS 2019 as a main conference paper.
 - **HCVA:** Worked on the co-embedding problem in attributed networks and proposed a hyper-spherical variational co-embedding framework to jointly learn the embeddings of nodes and attributes in a unified semantic space. The outcome of this project have been accepted in TOIS.
 - **GPGC:** Worked on improving the performance of GP models on relational data and proposed a novel graph convolutional kernel, which is able to enhance GP models on different relational learning tasks, such as link prediction and node classification. The research outcome of this project has been published at KDD 2021.
 - **GPSRF:** Worked on the scalability issue of GP models on large-scale graph data and proposed a structure-aware random Fourier kernel, which is able to improve the scalability of GP models on graph learning tasks while obtaining satisfactory performance. The research outcome of this project has been published at NeurIPS 2021.

- **VC-BML**: Worked on the catastrophic forgetting problem in continual learning and proposed a variational continual meta-learning model, which is able to alleviate the catastrophic forgetting problem with the Bayesian formulation and variational inference framework. The research outcome of this project has been published at NeurIPS 2021.

Publications

1. Guanzheng Chen, **Jinyuan Fang**, Zaiqiao Meng, Qiang Zhang and Shangsong Liang, Multi-Relational Graph Representation Learning with Bayesian Gaussian Process Network, Accepted in AAAI Conference on Artificial Intelligence (**AAAI**), 2022.
2. **Jinyuan Fang**, Shangsong Liang, Zaiqiao Meng, and Maarten de Rijke, Hyperspherical Variational Co-embedding for Attributed Networks, ACM Transactions on Information Systems (**TOIS**), 2022.
3. **Jinyuan Fang**, Qiang Zhang, Zaiqiao Meng, and Shangsong Liang, Structure-Aware Random Fourier Kernel for Graphs, Neural Information Processing Systems (**NeurIPS**), 2021.
4. Qiang Zhang (co-first author), **Jinyuan Fang (co-first author)**, Zaiqiao Meng, and Shangsong Liang, Variational Continual Bayesian Meta-Learning, Neural Information Processing Systems (**NeurIPS**), 2021.
5. **Jinyuan Fang**, Shangsong Liang, Zaiqiao Meng, and Qiang Zhang, Gaussian Process with Graph Convolutional Kernel for Relational Learning, In SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), 2021.
6. Zaiqiao Meng, Shangsong Liang, **Jinyuan Fang**, and Teng Xiao, Semi-supervisedly co-embedding attributed networks, Neural Information Processing System (**NeurIPS**), 2019.

Research Activities

• External Reviewer:

WWW 2021, KDD 2021, NeurIPS 2021, AAAI 2022

• Poster Presentation:

- **KDD 2021** Virtual
Gaussian Process with Graph Convolutional Kernel for Relational Learning 18/08/2021
- **NeurIPS 2021** Virtual
Structure-Aware Random Fourier Kernel for Graphs
Variational Continual Bayesian Meta-Learning 09/12/2021

Courses and Skills

• Selected Courses:

- Mathematics: Advanced Mathematics, Linear Algebra, Statistics, Discrete Mathematics
- Machine Learning: Machine Learning, Artificial Intelligence and Pattern Recognition
- Programming: Program Design, Java Language, Data Structure and Algorithm

• Programming languages & machine learning tools:

C, Java, Python, Latex, tensorflow, pytorch

• Languages:

Chinese, English (IELTS: 7.5/9.0)