Yang **Li**

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Ph.D. Student

Bio. I am currently a fourth-year Ph.D. student at Peking University, advised by Prof. Bin Cui. I faithfully believe that by making data—along with the processing of data—easily accessible to non-expert users, we have the potential to make the world a better place.

Research interests. My research interest covers machine learning, deep learning, reinforcement learning, and meta-learning. My research focuses on **automatic machine learning algorithms, systems, and their applications**. In particular, now I aim to build automatic machine learning systems to support machine learning and help facilitate data science.

Education

Sep 2017 – Jun 2022 (expected)	**Ph.D. Candidate** in Computer Software and Theory, *Peking University* (PKU), Beijing Institute of Network Computing and Information Systems (NCIS) Advisor : Prof. Bin Cui
Sep 2013 –Jun 2017	**Bachelor of Engineering**, *Sun Yat-Sen University* (SYSU), Guangzhou Majored in Software Engineering **GPA** : 4.0+/5.0 | **Rank** : 3/117

Publications

- **Yang Li**, Jiawei Jiang, Jinyang Gao, Yingxia Shao, Ce Zhang, Bin Cui, "Efficient Automatic CASH via Rising Bandits". AAAI 2020 (CCF-A, *Spotlight Presentation*).
- **Yang Li**, Shen Yu, Jiawei Jiang, Jinyang Gao, Ce Zhang, Bin Cui. "MFES-HB : Efficient Hyperband with Multi-Fidelity Quality Measurements". AAAI 2021 (CCF-A).
- **Yang Li**, Yu Shen, Wentao Zhang, Yuanwei Chen, Huai Jun Jiang, Ming Chao Liu, Jiawei Jiang, Jinyang Gao, Wentao Wu, Zhi Yang, Ce Zhang, Bin Cui, "OpenBox : A Generalized Black-box Optimization Service". SIGKDD 2021 (CCF-A).
- **Yang Li**, Yu Shen, Wentao Zhang, Jiawei Jiang, Yaliang Li, Bolin Ding, Jingren Zhou, Zhi Yang, Wentao Wu, Ce Zhang, Bin Cui, "VolcanoML : Speeding up End-to-End AutoML via Scalable Search Space Decomposition". VLDB 2021 (CCF-A).
- Wentao Zhang, Jiang Yuezihan, **Yang Li**, Zeang Sheng, Yu Shen, Xupeng Miao, Liang Wang, Zhi Yang, Bin Cui. "ROD : Reception-aware Online Distillation for Sparse Graphs". SIGKDD 2021 (CCF-A).
- Wentao Zhang, Yu Shen, **Yang Li**, Lei Chen, Zhi Yang, Bin Cui. "ALG : Fast and Accurate Active Learning Framework for Graph Convolutional Networks". SIGMOD 2021 (CCF-A).
- Wentao Zhang, Zhi Yang, YeXin Wang, Yu Shen, **Yang Li**, Liang Wang, Bin Cui. "Grain : Improving Data Efficiency of Graph Neural Networks via Diversified Influence Maximization". VLDB 2021 (CCF-A).
- Leonel Aguilar, David Dao, Shaoduo Gan, Nezihe Merve Gurel, Nora Hollenstein, Jiawei Jiang, Bojan Karlas, Thomas Lemmin, Tian Li, **Yang Li**, Susie Rao, Johannes Rausch, Cedric Renggli, Luka Rimanic, Maurice Weber, Shuai Zhang, Zhikuan Zhao, Kevin Schawinski, Wentao Wu, Ce Zhang. "Ease.ML : A Lifecycle Management System for Machine Learning". CIDR 2021 (CCF-B).

AutoML Projects

Currently, I am leading two AutoML projects in the DAIM lab at Peking university.

MindWare
TOOLS FOR DATA INTELLIGENCE

(a) MindWare

OPENBOX

(b) OpenBox

MindWare | An efficient open-source AutoML system for automating machine learning lifecycle.

MindWare can automate the process of 1) *data pre-processing*, 2) *feature engineering*, 3) *algorithm selection*, 4) *neural architecture design*, 5) *hyper-parameter tuning*, and 6) *model ensembling*. It is capable of improving its AutoML power by decomposing the entire large AutoML search space into small ones, and solve each sub-problems jointly and efficiently. The goal is to make machine learning easier to apply both in industry and academia, and help facilitate data science.
MindWare supports 1) AutoML tasks for tabular, image, text and graph structured data, 2) high-dimensional and complex search space, 3) transfer-learning and meta-learning, and 4) distributed parallelization.
Highlights : towards efficient and intelligent data system.
Github Address : https ://github.com/PKU-DAIR/mindware.

OpenBox Generalized and Efficient Blackbox Optimization System.
OpenBox is an efficient and generalized blackbox optimization (BBO) system, which supports the following characteristics : 1) BBO with multiple objectives and constraints, 2) BBO with transfer learning, 3) BBO with distributed parallelization, 4) BBO with multi-fidelity acceleration and 5) BBO with early stops.
The design of OpenBox follows the following principles : *Ease of use* : Minimal user effort, and user-friendly visualization for tracking and managing BBO tasks. *Consistent performance* : Host state-of-the-art optimization algorithms; Choose the proper algorithm automatically. Resource-aware management : Give cost-model-based advice to users, e.g., minimal workers or time-budget. *Scalability* : Scale to dimensions on the number of input variables, objectives, tasks, trials, and parallel evaluations. *High efficiency* : Effective use of parallel resources, system optimization with transfer-learning and multi-fidelities, etc. *Fault tolerance*, *extensibility*, and *data privacy protection*.
Highlights : blackbox optization as a service, python package, distributed system.
Enterprise Users : Alibaba Group and Kuaishou Technology.
Github Address : https ://github.com/PKU-DAIR/open-box.

</> Work Experience

Sep 2020 – Now
AI Platform Research Intern, Kuaishou Technology, Beijing
Build automatic system for industrial ML applications on large-scale dataset.
AutoML applications **Neural Architecture Search** **AutoDL**

Sep 2019 – Feb 2020
Research Intern, ETH Zürich, Switzerland
Do research at DS3LAB, advised by Prof. Ce Zhang
AutoML System **Automatic Feature Engineering**

Dec 2016 – Aug 2017
Backend Development Engineer, Tencent, Shenzhen
Intern Student in TEG Data Center, Developing "Tencent Big Data Suite".
Repo : Wherehows-eXtension(Data Discovery and Lineage for Big Data Ecosystem)
Hadoop **Spark** **Hive** **Hbase** **WhereHows**

June 2016 – Sep 2016
Backend Development Engineer, Alibaba Group, Hangzhou
Intern Student in Taobao, Content Platform (Middleware Development)
Spring **MVC** **GraphQL** **software development** **Database**

Honors & Awards

Fall 2016 First Prize of Outstanding Student (Sun Yat-Sen University).
Fall 2015 National Scholarship (The Ministry of Education of the People's Republic of China).
Fall 2015 First Prize of Outstanding Student (Sun Yat-Sen University).
Fall 2014 First Prize of Outstanding Student (Sun Yat-Sen University).

Interests

Sports : Football, Swimming.
Arts : Photography, Movies.
Misc : Fishing, Traveling, Quantitative investment.

(last update - 1st July. 2021)