

# SICHAO FU

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## EDUCATION

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<b>Huazhong University of Science and Technology, Wuhan, China</b> D. Eng. in Information and Communication Engineering Supervisor Professor Xinge You	Sep. 2020– Now
<b>JD Retail Planning Department, Beijing, China</b> Intern in Algorithm Engineer Supervisor Baokun Du and Postdoc Yibing Zhan	May 2021– Now
<b>JD Explore Academy, Beijing, China</b> Intern in Algorithm Engineer Supervisor Postdoc Yibing Zhan and Professor Dacheng Tao	Aug. 2021– Apr. 2022
<b>China University of Petroleum (East China), Qingdao, China</b> M. Eng. in Electronics and Communication Engineering Supervisor Professor Weifeng Liu	Sep. 2017– Jun. 2020
<b>Linyi University, Linyi, China</b> B. Eng. in Communication Engineering	Sep. 2013– Jun. 2017

## RESEARCH INTERESTS

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Few Shot Learning / Graph-based Few Shot Learning  
Graph Representation Learning / Graph Convolutional Networks  
Pattern Recognition / Deep Manifold Learning

## POSTGRADUATE HONORS AND AWARDS

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Outstanding Big Data Academic Achievement Award of Qingdao City, 2022  
Second Prize of the Eighth College Student Science and Technology Innovation Competition of Shandong Province, 2021  
First Prize of the Second College Student Innovation Method Competition of Shandong Province, 2021  
Outstanding Postgraduate Cadre of Huazhong University of Science and Technology, 2021  
Doctor Academic Scholarship of Huazhong University of Science and Technology, 2021  
Outstanding Master's Thesis of Shandong Province, 2021  
Outstanding Camper of China Computer Federation and Tencent Rhino-Bird Research Camp, 2021  
First Prize of the Artificial Intelligence Science and Technology (Natural Science) Award of Shandong Province, 2021

Outstanding Master's Thesis of Shandong Association for Artificial Intelligence, 2021

Outstanding Master's Thesis of Chinese Institute of Electronics, 2021

Second Prize of the First College Student Innovation Method Competition of Shandong Province, 2021

Doctor Academic Scholarship of Huazhong University of Science and Technology, 2020

Third Prize of Academic Degree Postgraduate Outstanding Achievement Award of Shandong Province, 2020

Third Prize of the Seventh College Student Science and Technology Innovation Competition of Shandong Province, 2020

Outstanding Master's Thesis of China University of Petroleum (East China), 2020

Outstanding Graduate of Shandong Province, 2020

First Prize of Professional Degree Postgraduate Outstanding Achievement Award of Shandong Province, 2019

China National Scholarship, 2019

Second Prize of North China Second Competition Zone of Siemens Cup China Intelligent Manufacturing Challenge, 2019

First Prize of Academic Scholarship of China University of Petroleum (East China) , 2019

Top Ten Postgraduate on Academic (Award Nomination) of China University of Petroleum (East China), 2019

Outstanding Postgraduate of China University of Petroleum (East China), 2019

Star on Academic of College of Oceanography and Space Informatics of China University of Petroleum (East China), 2019

Third Prize of Academic Scholarship of China University of Petroleum (East China), 2017

## PUBLICATIONS

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### Journals

1. Sichao Fu, Baodi Liu, Weifeng Liu, Bin Zou, Xinhua You, Qinmu Peng and Xiao-Yuan Jing, "Adaptive Multi-scale Transductive Information Propagation for Few-shot Learning", *Knowledge-Based Systems*, Minor Revise. (JCR: Q1; Impact factor: 8.038)
2. Sichao Fu, Senlin Wang, Weifeng Liu, Baodi Liu, Xinhua You, Qinmu Peng and Xiao-Yuan Jing, "Adaptive Graph Convolutional Collaboration Networks for Semi-supervised Classification", *Information Sciences*, Under Review. (JCR: Q1; Impact factor: 6.795)
3. Sichao Fu, Weifeng Liu, Kai Zhang and Yicong Zhou, "Example-Feature Graph Convolutional Networks for Semi-supervised Classification", *Neurocomputing*, vol. 461, pp. 63-76, 2021. (JCR: Q1; Impact factor: 5.719)
4. Weifeng Liu (supervisor), Sichao Fu, Yicong Zhou, Zheng-Jun Zha and Liqiang Nie, "Human Activity Recognition by Manifold Regularization Based Dynamic Graph Convolutional Networks", *Neurocomputing*, vol. 444, pp. 217-225, 2021. (JCR: Q1; Impact factor: 5.719)
5. Sichao Fu, Weifeng Liu, Weili Guan, Yicong Zhou, Dapeng Tao and Changsheng Xu, "Dynamic Graph Learning Convolutional Networks for Semi-supervised Classification", *ACM Transactions on*

*Multimedia Computing, Communications and Applications*, vol. 17, no. 1s, pp. 1-13, 2021. (JCR: Q1; Impact factor: 3.144)

6. Sichao Fu, Weifeng Liu, Kai Zhang, Yicong Zhou and Dapeng Tao, "Semi-supervised Classification by Graph  $p$ -Laplacian Convolutional Networks", *Information Sciences*, vol. 560, pp. 92-106, 2021. (JCR: Q1; Impact factor: 6.795)
7. Sichao Fu, Weifeng Liu, Dapeng Tao, Yicong Zhou and Liqiang Nie, "HesGCN: Hessian Graph Convolutional Networks for Semi-Supervised Classification", *Information Sciences*, vol. 514, pp. 484-498, 2020. (JCR: Q1; Impact factor: 6.795)
8. Sichao Fu, Weifeng Liu, Yicong Zhou and Liqiang Nie, "HpLapGCN: Hypergraph  $p$ -Laplacian Graph Convolutional Networks", *Neurocomputing*, vol. 362, pp. 166-174, 2019. (JCR: Q1; Impact factor: 5.719)
9. Sichao Fu, Weifeng Liu, Shuying Li and Yicong Zhou, "Two-Order Graph Convolutional Networks for Semi-Supervised Classification", *IET Image Processing*, vol. 13, no. 14, pp. 2763-2771, 2019. (JCR: Q3; Impact factor: 2.373)

### Conferences

10. Sichao Fu, Qiong Cao, Yunwen Lei, Yujie Zhong, Yibin Zhan and Xinge You, "Few-shot Classification with Dynamic Graph Structure Preserving", *2022 European Conference on Computer Vision (ECCV 2022)*, Under Review.
11. Sichao Fu, Weifeng Liu, Yicong Zhou, Zheng-Jun Zha and Liqiang Nie, "Dynamic Graph Convolutional Networks by Manifold Regularization", *2019 IJCAI Workshop on Deep Learning for Human Activity Recognition (IJCAIW 2019)*, Macao, China, 2019.
12. Sichao Fu, Xinghao Yang and Weifeng Liu, "The Comparison of Different Graph Convolutional Neural Networks for Image Recognition", *2018 International Conference on Internet Multimedia Computing and Service (ICIMCS 2018)*, Nanjing, China, 2018.

### Book Chapters

13. Sichao Fu and Weifeng Liu, "Recent Advances of Manifold-based Graph Convolutional Networks for Remote Sensing Images Recognition" in *Generalization with Deep Learning: For Improvement on Sensing Capability*, World Scientific, Book edited by: Chen Zhenghua, Wu Min and Li Xiaoli, ISBN: 978-981-121-883-5, pp. 209-232, 2021.

### Other Papers

14. Zhengqiang Zhang, Qinmu Peng, Sichao Fu, Yiu-ming Cheung, Yue Zhao, Shujian Yu and Xinge You, "A Componentwise Approach to Weakly-Supervised Semantic Segmentation Using Dual Feedback Network", *IEEE Transactions on Neural Networks and Learning Systems*, in press, 2022. (JCR: Q1; Impact factor: 10.451)
15. Jun Tang, Yanjiang Wang, Sichao Fu, Baodi Liu and Weifeng Liu, "A Graph Convolutional Neural Network Model with Fisher Vector Encoding and Channel-wise Spatial-Temporal Aggregation for Skeleton-based Action Recognition", *IET Image Processing*, vol. 16, no. 5, pp. 1433-1443, 2022. (JCR: Q3; Impact factor: 2.373)

### Degree Thesis

16. Sichao Fu and Weifeng Liu (supervisor), "Research on Graph Convolutional Networks Algorithms for Semi-Supervised Classification", *Degree Thesis of Engineering Master of China University of Petroleum (East China)*, 2020.
  - First Prize of Professional Degree Postgraduate Outstanding Achievement Award of Shandong Province
  - Outstanding Masters Thesis of China University of Petroleum (East China)
  - Outstanding Master's Thesis of Shandong Association for Artificial Intelligence
  - Outstanding Masters Thesis of Chinese Institute of Electronics
  - Outstanding Master's Thesis of Shandong Province

17. Sichao Fu and Fujiang Liu (supervisor), “Design and Research on the “Logistics Cloud” System based on Web and Smart Devices”, *Degree Thesis of Engineering Bachelor of Linyi University*, 2017.

## CHINA PATENTS

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1. **Few-shot Image Recognition based on Dynamic Graph Structure Preserving**
  - First Applicant
  - Patent for Invention
  - Open Number: 202210193867.8
  - Open Date: 7 March, 2022
2. **Semi-supervised Classification Method based on Hypergraph  $p$ -Laplacian Graph Convolutional Neural Networks**
  - First Applicant
  - Patent for Invention
  - Open Number: CN109766935A
  - Open Date: 17 May, 2019
3. **Semi-supervised Classification Method based on  $p$ -Laplacian Graph Convolutional Neural Networks**
  - First Applicant
  - Patent for Invention
  - Open Number: CN109583519A
  - Open Date: 5 April, 2019

## PROJECT

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### Under Study

1. Research on Multimedia Information Security Algorithms based on Deep Local Structure Preserving Theory and Adversarial Attacks
  - Co-first Project Leader
  - Funded by: Open Research Fund from Shandong Provincial Key Laboratory of Computer Network.
  - Grant Number: SKLCN-2021-02.
  - Jan. 2022 - Dec. 2023
2. Research on Key Technologies based on Cross-multimedia Causal Inference and Decision-making
  - Project Member
  - Funded by: Science and Technology Innovation 2030 C New Generation Artificial Intelligence Major Project.
  - Grant Number: 2021ZD0111700.
  - Dec. 2021 - Nov. 2024
3. Research on Non-local Information Architecture Methods based on Attention Mechanism and Graph Convolutional
  - Project Member
  - Funded by: Open Project Program of the State Key Laboratory of Integrated Services Networks.
  - Grant Number: ISN22-08.
  - Jan. 2021 - Dec. 2022
4. Machine Learning based Remaining Oil Distribution Prediction
  - Project Member
  - Funded by: Major Scientific and Technological Projects of China National Petroleum Corporation.
  - Grant Number: ZD2019-183-008.

- May 2020 - Dec. 2022

### **Study Complete**

- Research on the Efficient Local Geometry Preserving Methods of Graph Representation Learning and its Modeling Analysis
  - Co-first Project Leader
  - Funded by: Open Project Program of the National Laboratory of Pattern Recognition (NLPR).
  - Grant Number: 202000009.
  - Jan. 2020 - Dec. 2021
- Research on Semi-supervised Classification Method based on Graph Neural Networks
  - Project Leader
  - Funded by: Postgraduate Innovation Project, China University of Petroleum (East China).
  - Grant Number: YCX2019080.
  - May. 2019 - May. 2020
- Research on Data Representation Learning Theory and Method based on Graph Neural Networks
  - Co-first Project Leader
  - Funded by: Open Project Program of the Key Laboratory of Complex Systems Modeling and Simulation, Ministry of Education.
  - Jan. 2019 - Dec. 2020
- Research on Person re-identification Algorithms based on Metric Learning
  - Project Member
  - Funded by: Postgraduate Innovation Project, China University of Petroleum (East China).
  - Grant Number: YCX2018064.
  - May 2018 - Dec. 2019
- Research on Theory and Method of Large-scale Data Deep Structure Learning
  - Project Member
  - Funded by: Independent Innovation Research Project, China University of Petroleum (East China).
  - Grant Number: 18CX07011A.
  - Jan. 2018 - Dec. 2020
- Image Annotation based on Multi-view Depth Sparse Coding and Manifold Regularization
  - Project Member
  - Funded by: National Natural Science Foundation of China.
  - Grant Number: 61671480.
  - Jan. 2017 - Dec. 2020

## **ACADEMIC ACTIVITIES**

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### **Ad-hoc Reviewers**

- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Cybernetics
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Geoscience and Remote Sensing
- IEEE Transactions on Emerging Topics in Computational Intelligence
- IEEE/CAA Journal of Automatica Sinica
- IEEE Access
- IET Computer Vision
- Pattern Recognition
- Neural Networks
- Information Sciences
- Knowledge-Based Systems
- Neurocomputing

- Digital Signal Processing
- Artificial Intelligence in Medicine
- Neural Processing Letters
- Multimedia Tools and Applications
- Signal, Image and Video Processing
- Pattern Analysis and Applications
- Measurement
- Journal of Applied Remote Sensing
- Journal of Healthcare Engineering
- Mathematics
- Journal of Zhejiang University (Engineering Science)
- International Joint Conference on Artificial Intelligence (IJCAI 2019/2020/2021)
- International Conference on Information and Knowledge Management (CIKM 2019)
- International Conference on Multimedia and Expo (ICME 2019/2020)
- International Conference on Systems, Man, and Cybernetics (SMC 2019/2020)
- International Conference on Machine Learning, Optimization, and Data Science (LOD 2019/2020)
- International Conference on Pattern Recognition (ICPR 2022)
- ACM International Conference on Multimedia (MM 2020)
- Asian Conference on Pattern Recognition (ACPR 2019)
- Chinese Conference on Pattern Recognition and Computer Vision (PRCV 2019)
- The China Automation Congress (CAC 2021)

#### **Attended Conferences**

- International Joint Conference on Artificial Intelligence (IJCAI 2019)
- International Conference on Internet Multimedia Computing and Service (ICIMCS 2018)