Jiao Sun

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Gender: **Female**
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Education Background

09/2016~Present **Institute for Interdisciplinary Information Sciences, Tsinghua University** **Beijing, China**
M.Sc. in Computer Science and Technology

08/2012~07/2016 **School of Computer Science and Technology, Shandong University** **Jinan, China**
B.Eng. in Computer Science and Technology GPA: 90.1/100 Ranking: 2/156

English Proficiency

- **GRE** (Sep. 1st, 2018): Total: 328 (**V: 162**, Q: 166) AW: 3.5
- **TOEFL**(Sep. 16th, 2018): Total: 104(R: 30, L: 28, S: 23, W: 23)

Publications

- ***Jiao Sun***, Yin Li, Lei Shi, Charley Chen, Ling Huang, and Wei Xu, "CollisionDistance: Visual Fraud Detection over Categorically Featured Online Users" (In preparation)
- Yikun Ban, ***Jiao Sun***, Xin Liu, Ling Huang, Yitao Duan, and Wei Xu, "FraudTrap: Catching smart Fraudsters via Object Similarity Graph Analysis"(Submitted)
- ***Jiao Sun***, Qixin Zhu, Zhifei Liu, Xin Liu, Yueming Wang, Jihae Lee, Lei Shi, Ling Huang and Wei Xu, "FraudVis: Understanding Unsupervised Fraud Detection Algorithms", *the 11th IEEE Pacific Visualization Symposium(PacificVis 2018)*
- Charley Chen, Guosai Wang, ***Jiao Sun*** and Wei Xu, "Detecting Data Center Cooling Problems Using a Data-driven Approach", *the 9th Asia-Pacific Workshop on Systems(APSys 2018)*
- Yang Zhang, Tingjian Zhang, Yongzheng Jia, ***Jiao Sun*** and Wei Xu, "DataLab: Introducing Software Engineering Thinking into Data Science Education at Scale", *the 2017 IEEE/ACM 39th International Conference on Software Engineering: Software Engineering and Education Track (ICSE-SEET) in Buenos Ares, Argentina*
- ***Jiao Sun***, Li Pan, Shijun Liu, "**A case study for user rating prediction on automobile recommendation system using MapReduce**", bachelor thesis & *2018 International Workshop on HPC Supported Data Analytics for Edge Computing*
- Yi Wei, Shijun Liu, ***Jiao Sun***, Lizhen Cui, Li Pan and Lei Wu, "Big datasets for research: A survey on flagship conferences", Big Data (BigData Congress), 2016 IEEE International Congress on, 394-401

Honors and Awards

- Baidu-Tsinghua Future Star Scholarship of THU (top 3%) 10/2017
- Baidu-Tsinghua Social Work Scholarship of THU (top 3%) 10/2017
- Merit Student of Shandong Province (top 1%) 05/2016
- Outstanding Graduate Student of Shandong University (top 3%) 05/2016
- First-Class Scholarship of Shandong University (consecutive three times, top 2%) 2013~2016
- Merit Student of Shandong University(consecutive three times, top 2%) 2013~2016
- National Motivational Scholarship (consecutive three times, top 2%) 2013~2016
- Excellent Student Cadre of Shandong University(top 3%) 2016
- First Prize, Mathematical Contest of Modeling in Shandong University(top 1%) 08/2015
- Second Prize, Mathematical Contest in Modeling 05/2015
- Bronze Award, Mobile Innovation Programming Contest 05/2014
- Bronze Award, Qilu Software Programming Contest 09/2013
- Best debater of Shandong University 03/2013

Skills

- **Proficient** in Python, Matlab, Java, Django, Linux, Shell.
- **Familiar** with Javascript, R, html, css, Spark, Hadoop.

Research Experiences

03/2018~Present **CollisionDistance: Visual Fraud Detection over Categorically Featured Online Users** **THU**

M.Sc. Project **Funded by NSFC (No. 61532001) & Tsinghua Initiative Research Program** **Advisor: Prof. Wei Xu, Prof. Ling Huang**

- Designed a scalable, multi-layer collision map to interpret the output of algorithmic fraud detection methods. **&** Proposed a novel metric to consolidate the sub-space grouping characteristics of fraud users into the same high dimensional data space. **&** Developed a comprehensive visualization system prototype composed of the collision map, a scented feature selection and weighting panel, and detail views for both fraud groups and their user profiles. **&** In preparation.

06/2018~Present **FraudTrap: Catching Smart Fraudsters via Object Similarity Graph Analysis** **THU**

Core Member **Funded by NSFC (No. 61532001) & Tsinghua Initiative Research Program** **Advisor: Prof. Wei Xu, Prof. Ling Huang**

- Designed a fraud detection system called FraudTrap **&** Built Object Similarity Graph by a novel similarity metric to catch loosely synchronized behavior of fraud groups. **&** Worked for both the unsupervised and semi-supervised modes. **&** Provided an optimized algorithm that significantly reduces the computational cost of building OSG. **&** Designed a scalable and provably converging algorithm to detect multiple dense subgraphs simultaneously in OSG implemented in Apache Spark. **&** On submission.

09/2017~2018/03 **FraudVis: Understanding Unsupervised Fraud Detection Algorithms** **THU**

First Author **Funded by NSFC (No. 61532001) & Tsinghua Initiative Research Program** **Advisor: Prof. Wei Xu, Prof. Ling Huang**

- Comprehensively visualized the fraud detection results. **&** Visual interpretation of algorithm results through customized interactions. **&** Evaluation through real-world data sets, algorithms, and cases. **&** Published a paper in *The 11th IEEE Pacific Visualization Symposium(PacificVis 2018)*
- Won **Best Poster Prize** in *The 8th Cross-Strait Tsinghua Postgraduate Academic Forum*（*acceptance rate <13%* ）

09/2016~08/2017 **DataLab: Introducing Software Engineering Thinking into Data Science Education at Scale** **THU**

Member **Funded by NSFC (No. 61379088) & Google Faculty Award & China 1000 Talents Plan Grants.** **Advisor: Prof. Wei Xu**

- Designed and implemented DataLab, a web-based tool for data science education that integrates code, data and execution management into one system. **&** Provided a hands-on online lab environment to train students to have basic software engineering thinking and habits while maintaining a focus on the core data science contents. **&** Published a paper in *39th International Conference on Software Engineering Education and Training Track(ICSE SEET 2017)*.

09/2015~04/2016 **A case study for user rating prediction on automobile recommendation system using MapReduce** **SDU**

B.Eng. Project **Funded by National Natural Science Foundation of China (61402263, 61572295).** **Advisor: Prof. Li Pan**

- Optimized the computational cost of collaborative filtering methods of matrix factorization using MapReduce. **&** Applied the optimized algorithm to the recommendation of automobiles. **&** Published a paper in *2018 International Workshop on HPC Supported Data Analytics for Edge Computing*.
- Rewarded as Excellent Graduation Thesis of Shandong University (top 3%).

Extracurricular Activities

04/2017~Present **Vice Chairman** **Graduate Association of Interdisciplinary Information Sciences, THU**

- Organized several activities, such as *'Meet with alumnus'*, *Graduate Student Academic Sharing Forum* and so on

03/2013~03/2015 **Founder & Minister** **Asian Youth Center Association, THU**

- Fostered the communication between Chinese students and International Students. **&** Improved the global leadership of memberships

09/2012~03/2014 **Student Ambassador** **Tsinghua Schwartzman College & "Experiencing China" Program, THU**

- Helped international students learn more about Tsinghua and China & Helped spread the global impression of Tsinghua