

Jiao Sun 孙娇

jiaosun.thu@gmail.com sunjiao123sun.github.io

Research Interest: Machine Learning, Human-Computer Interaction, Data Visualization

Education

- **M.Sc., Computer Science and Technology, IIS, Tsinghua University, Beijing, China** 09/2016 - 07/2019
 - Overall GPA: 3.7/4.0, Rank 1/6 (all master students in the department); Advisor: [Wei Xu](#)
- **B.E., Computer Science Department, Shandong University, China** 08/2012 - 06/2016
 - Overall GPA: 4.0/4.0; Rank 1/43 (graduated with the highest honor)

Awards

- Tsinghua-RWTH Aachen University Research Fellowship 10/2018
- Baidu-Tsinghua Future Star Scholarship of THU (top 3%) 10/2017
- Outstanding Graduate of Shandong Province (top 1%) 05/2016
- Outstanding Graduate 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%) 06/2016
- First Prize, Mathematical Contest of Modeling in Shandong University (top 1%) 08/2015
- Bronze Award, National Mobile Innovation Programming Contest 05/2014
- Best debater of Shandong University 03/2013

Publications

- [1] **Jiao Sun**, Yin Li, Lei Shi, Charley Chen, Ling Huang, and Wei Xu, "Assist Unsupervised Fraud Detection Experts with Interactive Feature Selection and Evaluation" (In submission to SIGCHI 2020)[initial review 3.5/5]
- [2] Yikun Ban, **Jiao Sun**, Xin Liu, Ling Huang, Yitao Duan, and Wei Xu, "FraudTrap: Catching smart Fraudsters via Object Similarity Graph Analysis" (Submitted)
- [3] **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)
- [4] 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)
- [5] Yang Zhang, Tingjian Zhang, Yongzheng Jia, **Jiao Sun** and Wei Xu, "DataLab: Introducing Software Engineering Thinking into Data Science Education at Scale" (ICSE 2017)
- [6] **Jiao Sun**, Li Pan, Shijun Liu, "A case study for user rating prediction on automobile recommendation system using MapReduce"
- [7] Yi Wei, Shijun Liu, **Jiao Sun**, Lizhen Cui, Li Pan and Lei Wu, "Big datasets for research: A survey on flagship conferences" (BigData Congress 2016)

Skills

- **Proficient** in Python, Matlab, Java, Django, Linux, Shell, SQL, Neo4j
- **Familiar** with Tensorflow, PyTorch, Keras, Javascript, R, Html, D3.js, Spark, Hadoop, GPU Programming, R

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)

Selected Research & Projects

- Research Assistant at CS Department, University of Southern California** 07/2019 - now
KEYWORDS: Machine Learning; Neural Network; Natural Language Processing
 Use deep graph neural network to generate multi-relational graphs
 Embed the information of nodes and edge labels into graph generation models
- Research Intern at Informatik 5 Lab, RWTH Aachen University, Germany** 01/2019 - 03/2019
KEYWORDS: Anomaly Detection; Model Generation; Machine Learning; Data Mining
 Under the supervision of Prof. Dr. [Christoph Quix](#)
 Use machine learning based models on detecting anomalies from the entry data
 Generate synthetic data to test the generality of the model
- Assist Unsupervised Fraud Detection Experts with Interactive Feature Selection and Evaluation [1]** 03/2018 – 09/2019
KEYWORDS: Anomaly Detection; Visualization; Interactive Algorithm Fine-tuning; Human Computer Interaction
 Registered three national-level patents in China; Co-authored with Wei Xu and [Andrew Chi-Chih Yao](#)
 Designed a scalable, multi-layer collision map to timely interpret the quality of fraud detection algorithms
 Proposed a novel metric to consolidate the sub-space grouping characteristics of fraud users
 Timely interactive feature selection with the visual guidance
- FraudTrap: Catching Smart Fraudsters via Object Similarity Graph Analysis [2]** 06/2018 - 06/2019
KEYWORDS: Anomaly Detection; Graph Algorithm; Machine Learning; Data Mining
 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
 Designed a scalable and provably converging algorithm implemented in Apache Spark
- FraudVis: Understanding Unsupervised Fraud Detection Algorithms [3]** 09/2017 - 03/2018
KEYWORDS: Anomaly Detection; Data Visualization; Human Computer Interaction
 Won the **Best Poster Award** in The 8th Cross-Strait Tsinghua Postgraduate Academic Forum
 Comprehensive data visualization system of the fraud detection result
 Customized interactions for different target users
- DataLab: Introducing Software Engineering Thinking into Data Science Education at Scale [5]**
KEYWORDS: Software Engineering; Education; Large-scale Computation
 Designed and implemented a web-based tool for the data science education
 Integrated code, data and execution management together
 Provided a hands-on online lab environment to train students with a focus on the data science contents

Work Experience

- Data Science Intern at Tencent, Beijing** 05/2019-07/2019
KEYWORDS: Video Quality Test; Software Engineering; Data Mining
 Explored about how to reduce the data rate of videos while keeping the resolution of videos
 Data processing and interface implementation