Jiao Sun 孙娇

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

EDUCATION

- **M.Sc., Computer Science and Technology, IIIS, 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)

PUBLICATION

- **Jiao Sun,** Yin Li, Lei Shi, Charley Chen, Ling Huang, and Wei Xu, "FDHelper: Assist Unsupervised Fraud Detection Experts with Interactive Feature Selection and Evaluation" (Under Review at **SIGCHI 2020**) [initial review 3.5/5]
- Yikun Ban, **Jiao Sun,** Xin Liu, Ling Huang, Yitao Duan, and Wei Xu, "FraudTrap: Catching smart Fraudsters via Object Similarity Graph Analysis" (Arxiv Preprint)
- **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" (**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" (**ICSE 2017**)

AWARDS

- Tsinghua-RWTH Aachen University Research Fellowship 10/2018
- Baidu-Tsinghua Future Star Scholarship (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

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**: Total: 328 (V: **162[91%]**, Q: 166) AW: 3.5
- **TOEFL**: Total: 104 (R: 30, L: 28, S: 23, W: 23)

RESEACH & PROJECTS

- **FDHelper: Assist Unsupervised Fraud Detection Experts with Interactive Feature Selection and Evaluation [1]**
  KEYWORDS: Human Computer Interaction; Fraud Detection; Visualization; Interactive ML assistant tool;
  Registered three national-level patents in China; Co-authored with Wei Xu and Andrew Chi-Chih Yao
  Interactive fraud detection algorithm fine-tuning with the visual guidance;
  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

- **FraudTrap: Catching Smart Fraudsters via Object Similarity Graph Analysis [2]**
  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]**
  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

- **Research Intern at Informatik 5 Lab, RWTH Aachen University, Germany**
  KEYWORDS: Anomaly Detection; Model Generation; Machine Learning; Data Mining
  Use machine learning based models on detecting anomalies from the entry data
  Generate synthetic data to test the generality of the model

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