

# JIAN GAO

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## CONTACT INFORMATION

Room B1-202, Main Building  
CompleX Lab, Web Sciences Center  
Univ. of Elec. Sci. & Tech. of China  
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Chengdu, Sichuan Province, P.R.China 611731

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## RESEARCH INTERESTS

**Network Science:** Network Models, Percolation, Networked Spreading Processes  
**Recommender Systems:** Recommendation Algorithms, Online Ranking Methods  
**Data Analysis:** Social media, Co-authorship, Economy and Industry data analysis

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## EDUCATION

**Univ. of Elec. Sci. & Tech. of China (UESTC)** Chengdu, China  
*Ph.D. Student in Computer Science* Sep. 2014 - Now  
Web Sciences Center, School of Computer Science & Engineering  
Adviser: Prof. Tao Zhou

**Univ. of Elec. Sci. & Tech. of China (UESTC)** Chengdu, China  
*Master Student in Computer Science* Sep. 2012 - Jul. 2014  
Web Sciences Center, School of Computer Science & Engineering  
Adviser: Prof. Tao Zhou

**Univ. of Elec. Sci. & Tech. of China (UESTC)** Chengdu, China  
*Bachelor of Science in Mathematics, Highest honors* Sep. 2008 - Jul. 2012  
School of Mathematical Sciences

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## RESEARCH EXPERIENCE

**Research Assistant** Sep. 2013 - Sep. 2015  
CompleX Lab, Web Sciences Center, UESTC  
Advised by Prof. Tao Zhou and Dr. Yanqing Hu  
*Did research on online social networks, percolation on spatial networks, and company data analysis, accomplished three journal papers, will write two more journal paper.*

**Research Assistant** Nov. 2011 - Aug. 2013  
Web Sciences Center, UESTC  
Advised by Prof. Tao Zhou  
*Worked with Prof. Mingsheng Shang and Dr. Shimin Cai on missing value imputation, evolution and ranking problem of online rating systems, accomplished two journal paper.*

**Research Assistant** Sep. 2010 - Oct. 2011  
School of Mathematical Sciences, UESTC  
Advised by Assoc. Prof. Mingqi Li  
*Did research on modeling the evolution of microbial population in a wine cellar and evaluating scholarship in universities, published two journal papers in Chinese.*

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## BOOK CHAPTERS

[1] **Jian Gao**, Linyan Zhang, Qian-Ming Zhang and Tao Zhou. *Big Data Human Resources: Performance Analysis and Promotion/Resignation in Employee Networks in Social Physics: Social Governance*. Beijing: Science Press, 2014. (In Chinese)

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**REFEREED  
PUBLICATIONS****In Progress**

- [1] **Jian Gao**, Tao Zhou, *et al.* *Symbiosis and monopoly of the local industry structure in China*. October, 2015. (Prepared for *Science Advances*)
- [2] **Jian Gao**, Tao Zhou, Yiding Liu, Haixing Dai and Dan Yang. *Modeling local economy complexity via company data analysis*. October, 2015. (Prepared for *Nature Scientific Reports*)
- [3] Ling-Jiao Chen, Zi-Ke Zhang, Jin-Hu Liu, **Jian Gao** (corresponding author), and Tao Zhou. *A novel similarity index for better personalized recommendation*. August, 2015. (Prepared for *Europhysics Letters*)

**Pre-print**

- [1] **Jian Gao** (corresponding author) and Tao Zhou. *Evaluating user reputation in online rating systems via an iterative group-based ranking method*. arXiv:1509.00594, 2015. (First round review under *Knowledge-Based Systems*)
- [2] Jian Yuan, Qian-Ming Zhang, **Jian Gao**, Linyan Zhang, Xue-Song Wan, Xiao-Jun Yu, and Tao Zhou. *Promotion and resignation in employee networks*. arXiv:1502.04184, 2015. (Third round review under *Physica A*)

**Journal Papers**

- [1] **Jian Gao**, Tao Zhou, and Yanqing Hu. Bootstrap percolation on spatial networks. *Nature Scientific Reports*, 2015, 5:14662.
- [2] **Jian Gao**, Yu-Wei Dong, Ming-Shing Shang, Shi-Min Cai, and Tao Zhou. *Group-based ranking method for online rating systems with spamming attacks*. *EPL*, 2015, 110: 28003.
- [3] Linyan Zhang, **Jian Gao**, Xiang Hong, and Tao Zhou. *Human Resource Management Based on Big Data*. *Big Data Research*, 2015, 1: 2015012. (In Chinese)
- [4] Dan-Dan Zhao, An Zeng, Ming-Sheng Shang, and **Jian Gao**. *Long-term effects of recommendation on the evolution of online systems*. *Chinese Physics Letters*, 2013, 30(11): 8901.
- [5] Fang-Jian Guo, Jiang Su, and **Jian Gao**. *Finding conspirators in the network via machine learning*. *The UMAP Journal*, 33(3), 2012. (Outstanding Winner Award paper for MCM/ICM 2012)
- [6] **Jian Gao**, and Xi-Nan Zhang. *Comprehensive scholarship evaluation model in colleges and universities*. *Journal of Chongqing Technology and Business University (Nat Sci Ed)*. 2012, 29(1): 36-41. (In Chinese)

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**FUNDING**

- [1] Principal Investigator. Performance and behavior trend predication of employees in the context of big data. National Social Science Foundation of China (Grand No. 15CGL029). Co-PI with Dr. Jia Yuan (Chengdu Institute of Public Administration), RMB 200,000, May 2015-Present.
- [2] Investigator. Interdisciplinary research of statistical physics and information science. National Natural Science Foundation of China (Grand No. 11222543), directed by Prof. Tao Zhou, RMB 1,000,000, June 2014-Present.
- [3] Investigator. Study of information recommendation in dynamic evolution online system. National Natural Science Foundation of China (Grand No. 61370150), directed by Prof. Mingsheng Shang. RMB 750,000, January 2014-December 2014.
- [4] Investigator, Percolation theory and cascading failure behavior on coupled com-

plex networks based on actual structure. National Natural Science Foundation of China (Grand No. 61203156), directed by Dr. Yanqing Hu (Southwest Jiaotong University), RMB 250,000, September 2013-September 2014.

[5] Investigator. Integration study of social network and spreading dynamics. National Natural Science Foundation of China (Grand No. 91324002), directed by Prof. Mingsheng Shang, RMB 150,000, October 2013-April 2014.

[6] Principal Investigator. Modeling of population structure of microbes in cellar. Science and Technology Innovation Fund Project of UESTC. RMB 3,000, January 2011-December 2011.

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| <b>TEACHING<br/>EXPERIENCE</b> | <b>Teaching Assistant</b>              | Sep. 2013 - Jan. 2014               |
|                                | School of Mathematical Sciences, UESTC |                                     |
|                                | Course: Calculus                       | Instructor: Assoc. Prof. Yong Zhang |
|                                | <b>Teaching Assistant</b>              | Sep. 2012 - Jan. 2013               |
|                                | School of Mathematical Sciences, UESTC |                                     |
|                                | Course: Mathematical Modeling          | Instructor: Lectr. Hongfei Du       |

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| <b>WORKING<br/>EXPERIENCE</b> | <b>Research Intern</b>   | Jun. 2015 - Aug. 2015 |
|                               | Business Big Data LTD., Chengdu, China                               |                       |
|                               | Position: Data Analyst   |                       |
|                               | <b>Research Intern</b>   | Jan. 2014 - Jan. 2015 |
|                               | Hire Big Data LTD., Chengdu, China                                   |                       |
|                               | Position: Senior Algorithms Engineer                                 |                       |
|                               | <b>Management Intern</b>   | Sep. 2010 - Jun. 2012 |
|                               | Department of Student Affair, School of Mathematical Sciences, UESTC |                       |
|                               | Position: Assistant Counselor  |                       |

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| <b>SCHOLARSHIP</b> | Tang Lixin Scholarship (0.2%), UESTC                                  | 2013-2015 |
|                    | Entrance Scholarship (twice) (10%), UESTC                             | 2012&2014 |
|                    | Second-class Graduate Scholarship (15%), UESTC                        | 2013-2014 |
|                    | National Inspiration Scholarship (5%), Ministry of Education of China | 2011-2012 |
|                    | Single Award of People's Scholarship (twice) (5%), UESTC              | 2009-2011 |
|                    | First-class People's Scholarship (10%), UESTC                         | 2010-2011 |
|                    | National Inspiration Scholarship (5%), Ministry of Education of China | 2009-2010 |

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| <b>AWARDS</b> | Best Poster Award in the 2nd Conference on Complexity Science (5%)             | 2014 |
|               | <i>Chinese Complexity Science Research Council</i>                             |      |
|               | <b>Outstanding Winner</b> in 2012 Interdisciplinary Contest in Modeling (0.3%) | 2012 |
|               | <i>COMAP, sponsored by SIAM, MAA, NSA and INFORMS</i>                          |      |
|               | Second-class Award in Asia-Pacific Mathematical Contest in Modeling (4.5%)     | 2011 |
|               | <i>MATHOR Network, sponsored by APMMW</i>                                      |      |
|               | National Second-class Award in Contemporary Undergraduate MCM (5%)             | 2010 |
|               | <i>CSIAM, sponsored by COMAP, MathWorks Inc and IBM Inc</i>                    |      |
|               | First-class Award in Mathematical Contest in Modeling (1.8%)                   | 2010 |
|               | <i>UESTC, sponsored by School of Continuing Education</i>                      |      |

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| <b>HONOURS</b> | Outstanding Staff Award of the year, Hire Big Data, LTD   | 2015 |
|                | Deserving Candidate and Outstanding Team of CAS Summer School on Systems Science, China Academic of Science (CAS) | 2013 |
|                | <b>Outstanding Student</b> of the University (0.2%, highest honor), UESTC   | 2012 |
|                | Outstanding Graduates Awards of the University (5%), UESTC  | 2012 |
|                | Outstanding Individual on Work-study, the only in our school (1%), UESTC  | 2011 |
|                | Excellent Individual in Social Practice of the University (5%), UESTC   | 2011 |

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| <b>CONTRIBUTED TALKS</b> | Linking Companies and Economic Complexity.   | Jun. 2015 |
|                          | <i>China Inter-discipline Association for Complex Economy (CIACE), Yantai, China</i>                               |           |
|                          | Group-based ranking method for online rating systems.  | Mar. 2015 |
|                          | <i>Seminar of CompleX Lab, Web Sciences Center, UESTC, Chengdu, China</i>  |           |
|                          | Bootstrap percolation on spatial networks.   | Oct. 2014 |
|                          | <i>The 10th Chinese Conference on Complex Networks, National University of Defense Technology, Changsha, China</i> |           |
|                          | Bootstrap percolation on Kleinberg's network.  | Jul. 2014 |
|                          | <i>The 2nd Conference on Complexity Science (Academic Conference), Wenzhou University, Wenzhou, China</i>          |           |
|                          | Collective behavior and intervention of crowd.   | Oct. 2013 |
|                          | <i>The CAS Summer School- School of Systems Science. CAS, Beijing, China</i>                                       |           |
|                          | A two-stage-ranking algorithm based on interval clustering.  | Jan. 2013 |
|                          | <i>Winter School on Networks and Complexity, UESTC, Chengdu, China</i>   |           |

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| <b>ACADEMIC ACTIVITIES</b> | The Statistical Physics and Complex Systems Conference, Lanzhou, China | Jul. 2015 |
|                            | The Inter-discipline Association for Complex Economy, Yantai, China    | Jun. 2015 |
|                            | The Seminar on Frontier Issues of Complex Networks, Shenzhen, China    | Jan. 2015 |
|                            | The 10th Chinese Conference on Complex Networks, Changsha, China       | Oct. 2014 |
|                            | The 2nd Academic Conference on Complexity Science, Wenzhou, China      | Jul. 2014 |
|                            | The 9th Chinese Conference on Complex Networks, Hangzhou, China        | Oct. 2013 |

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| <b>EXTRA ACADEMIC ACTIVITIES</b> | Member of Innovation Study and Share (ISS) Club                                | Nov. 2013 - Now       |
|                                  | <i>The club is under Tang Lixin Education Development Foundation in UESTC.</i> |                       |
|                                  | Instructor of Association Mathematical Modeling (AMM)                          | Oct. 2011 - Jun. 2014 |
|                                  | <i>The AMM is a student association in UESTC.</i>                              |                       |
|                                  | Leader of Work-Study Team in the School  | Sep. 2010 - Jun. 2012 |
|                                  | <i>The program is built by Student Financial Aid Center in UESTC.</i>          |                       |
|                                  | Vice Minister and Journalist of Propaganda Department                          | Sep. 2008 - Jun. 2009 |
|                                  | <i>Student Union, School of Mathematical Sciences, UESTC.</i>                  |                       |

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| <b>SKILLS</b> | Programming: MATLAB (practical experiences), Python       |
|               | Visualization: OriginLab, Gephi, D3.js, Adobe Illustrator |

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Typesetting: L<sup>A</sup>T<sub>E</sub>X, MS Office  
Language: Chinese (native), English (intermediate)

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**HOBBY** Soccer, Badminton, Skiing, Skating

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**REFERENCE** Prof. Tao Zhou. University of Electronic Science and Technology of China.  
E-mail: zhutou@ustc.edu  
<http://scholar.google.com/citations?user=MXgWgmEAAAAJ>

Prof. Mingsheng Shang. University of Electronic Science and Technology of China.  
E-mail: shang.mingsheng@gmail.com  
<https://scholar.google.com/citations?user=1cKbdYEAAAAJ>

Dr. Yanqing Hu. Sun Yat-sen (Zhongshan) University.  
E-mail: yanqing.hu.sc@gmail.com  
<https://scholar.google.com/citations?user=1QTe3cQAAAAJ>

Dr. Shimin Cai. University of Electronic Science and Technology of China.  
E-mail: shimin.cai81@gmail.com  
<http://scholar.google.com/citations?user=nGDBb0kAAAAJ>

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