

# 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  
No.2006, Xiyuan Ave, West Hi-Tech Zone  
Chengdu, Sichuan Province, P.R.China 611731

E-mail: gaojian08@hotmail.com  
Homepage: <http://gaocn.net>  
Mobile: +86-136-9944-5766  
Voice: +1-617-500-3208  
Skype: gaojianuestc

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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*)

**Pre-print**

- [1] Ling-Jiao Chen, Zi-Ke Zhang, Jin-Hu Liu, **Jian Gao** (corresponding author), and Tao Zhou. *A novel similarity index for better personalized recommendation*. arXiv:1510.02348, 2015. (Submitted to *Europhysics Letters*)
- [2] **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*)
- [3] 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 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 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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