

# Jian Gao

## Personal Information

Birth DATE: May 28, 1989      ◇ GENDER: Male      ◇ NATIONALITY: P.R. China  
Address CompleX Lab, Web Sciences Center, School of Computer Science and Engineering, UESTC  
Xiyuan Ave No.2006, West Hi-Tech Zone, Chengdu 611731, P.R. China

## Education

2012–Present **University of Electronic Science and Technology of China** Chengdu, China  
PhD 14' (Master 12') student in *Computer Science*. CompleX Lab, Web Sciences Center  
Advisor: Prof. Tao Zhou  
2008–2012 **University of Electronic Science and Technology of China** Chengdu, China  
B.Sc in *Information and Computing Science*. School of Mathematical Sciences  
GPA: 88.6/100 (3.88/4)

## Research Interests

Network Sci Network Models, Percolation Transition, Spreading Processes, Ranking Methods  
Data Anal Social Media, Co-authorship, Industry, Economic and Employee Data Analysis

## Selected Projects

2015–Present Modeling Local Industry Structure and Economic Complexity of China UESTC  
2014–2015 Information Spreading and Percolation on Spatial Social Networks UESTC & SWJT  
2013–2014 User Reputation Evaluation and Robust Online Ranking Methods UESTC

## Selected Publications

- [1] **Jian Gao**, Tao Zhou, *et al.* Symbiosis and monopoly of the local industry structure in China. Oct 2015. (In preparation for *Science Advances*)
- [2] **Jian Gao** and Tao Zhou. Evaluating user reputation in online rating systems via an iterative group-based ranking method. arXiv:1509.00594, 2015. (under review at *Knowl.-Based Syst.*)
- [3] **Jian Gao**, Tao Zhou, and Yanqing Hu. Bootstrap percolation on spatial networks. *Nature Scientific Reports*, 5:14662, 2015.
- [4] **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. *Europhysics Letters*, 110: 28003, 2015.
- [5] Jian Yuan, Qian-Ming Zhang, **Jian Gao**, Linyan Zhang, Xue-Song Wan, Xiao-Jun Yu, and Tao Zhou. Promotion and resignation in employee networks. *Physica A*, 2015. (In press)

## Selected Awards

2014 Best Poster Award in the 2nd Conference on Complexity Science (Top 3)  
*Chinese Complexity Science Research Council*  
2012 Outstanding Winner in 2012 Interdisciplinary Contest in Modeling (0.3%)  
*COMAP, sponsored by SIAM, NSA and INFORMS*  
2011 Outstanding Student of the University, awarded by UESTC (0.2%)

## Selected Experience

2015–Present Research Assistant to Prof. Tao Zhou. Big Data Research Center, UESTC Chengdu, China  
2014–2015 Research Intern. Hire Big Data and Business Big Data (Chengdu) LTD. Chengdu, China

## Skills

Programming MATLAB (practical), Python (basic)      ◇ Visualization: OriginLab, Gephi, D3, AI  
Language English (fluent), Chinese (native)      ◇ Typesetting: L<sup>A</sup>T<sub>E</sub>X, MS Office

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**Gender:** Male

**Birth:** May 28, 1989

**Nationality:** P.R. China

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**CONTACT  
INFORMATION**

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**RESEARCH  
INTERESTS**

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

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**EDUCATION**

**Univ. of Elec. Sci. & Tech. of China (UESTC)** Chengdu, China  
*Ph.D. Student in Computer Science* Sep. 2014 - Present  
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  
GPA: 88.6/100 (3.88/4)

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**RESEARCH  
EXPERIENCE**

**Research Assistant** Sep. 2013 - Present  
**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, vertex similarity, co-authorship network, economy and company data analysis.*

**Research Assistant** Nov. 2011 - Aug. 2013  
**Web Sciences Center, UESTC**  
Advised by Prof. Tao Zhou and Prof. Ming-Sheng Shang  
*Worked on missing value imputation, ranking problem in online rating systems, and evolution of recommender systems.*

**Research Assistant** Sep. 2010 - Oct. 2011  
**School of Mathematical Sciences, UESTC**  
Advised by Assoc. Prof. Ming-Qi 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**

**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, Yi-Ding Liu, Hai-Xing Dai and Dan Yang. Modeling local economy complexity via company data analysis. October, 2015. (Prepared for *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*)

**Journal Papers**

- [1] Jian Yuan, Qian-Ming Zhang, **Jian Gao**, Linyan Zhang, Xue-Song Wan, Xiao-Jun Yu, and Tao Zhou. Promotion and resignation in employee networks. *Physica A*, arXiv:1502.04184, 2015. (In press)
  - [2] **Jian Gao**, Tao Zhou, and Yanqing Hu. Bootstrap percolation on spatial networks. *Scientific Reports*, 2015, 5:14662.
  - [3] **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. *Europhysics Letters*, 2015, 110: 28003.
  - [4] Linyan Zhang, **Jian Gao**, Xiang Hong, and Tao Zhou. Human Resource Management Based on Big Data. *Big Data Research*, 2015, 1: 2015012. (In Chinese)
  - [5] 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.
  - [6] 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)
  - [7] **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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**PATENT**

**CN Patent:** CN 201410638173

**Filed:** Nov 13, 2014

**Title:** Method for Detecting Malicious Users in Online Social Media System.

**Owners:** Ming-Sheng Shang, Shi-Min Cai, **Jian Gao**, and Yu-Wei Dong.

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## FUNDING

- [1] **Co-PI.** 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 complex 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] **PI.** 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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## TEACHING EXPERIENCE

<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: Lecturer Hongfei Du

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## WORKING EXPERIENCE

<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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## SCHOLARSHIP

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

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

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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

Last updated: October 15, 2015

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**EXTRA  
ACADEMIC  
ACTIVITIES**

Member of Volunteer Groups of UESTC Sep. 2014 - Present  
*The volunteer groups focus on accompanying and caring of autistic children.*

Member of Innovation Study and Share (ISS) Club Nov. 2013 - Present  
*The club is under Tang Lixin Education Development Foundation in UESTC.*

Instructor of Association Mathematical Modeling (AMM) Oct. 2011 - Jun. 2014  
*The AMM is a student association in UESTC.*

Leader of Work-Study Team in the School Sep. 2010 - Jun. 2012  
*The program is built by Student Financial Aid Center in UESTC.*

Vice Minister and Journalist of Propaganda Department Sep. 2008 - Jun. 2009  
*Student Union, School of Mathematical Sciences, UESTC.*

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**SKILLS**

Programming: MATLAB (practical experiences), Python  
Visualization: OriginLab, Gephi, D3.js, Adobe Illustrator  
Typesetting: L<sup>A</sup>T<sub>E</sub>X, MS Office  
Language: Chinese (native), English (fluent)

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**HOBBY**

Soccer, Badminton, Skiing, Skating

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**REFERENCE**

**Tao Zhou, PhD**  
Professor  
Director, Web Sciences Center  
University of Electronic Science and Technology of China  
Director, Big Data Research Center  
University of Electronic Science and Technology of China  
E-mail: zhutou@ustc.edu; zhutouster@gmail.com  
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