

CONTACT INFORMATION Department of Statistics, Virginia Tech  
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EXPERIENCE **Virginia Tech**, Blacksburg, VA  
Assistant Professor of Statistics (tenure-track) Aug 2016 – present  
**Max New York Life**, Gurgaon, India  
Product Pricing & Risk Management Actuary Aug 2010 – Jul 2011  
**ICICI Prudential**, Mumbai, India  
Risk Management Actuary Jun 2009 – Jul 2010

EDUCATION **University of Illinois at Urbana-Champaign**, IL  
Ph.D. in Statistics Aug 2011 - Jul 2016  
*Norton prize for outstanding Ph.D. Thesis*  
Advisors: Prof. Yuguo Chen and Prof. Xiaofeng Shao  
**Indian Statistical Institute**, Kolkata, India  
M.Stat (1<sup>st</sup> Division with Distinction) Jul 2007 - May 2009  
Specialization: Mathematical Statistics and Probability  
**Indian Statistical Institute**, Kolkata, India  
B.Stat (1<sup>st</sup> Division with Distinction) Jul 2004 - May 2007

RESEARCH GRANTS 1. Luther and Alice Hamlett Undergraduate Research Support 2017–18  
Role: Principal Investigator Amount: \$12,000  
2. Industry Grant, Socially Determined 2017–18  
Role: Principal Investigator Amount: \$44,484  
3. Dean’s Discovery Fund, Virginia Tech College of Science 2017–18  
Role: Principal Investigator Amount: \$10,000  
4. Early Career Faculty Grant, Virginia Tech 2017–18  
Role: Principal Investigator Amount: \$1,500

RESEARCH INTERESTS Statistical inference in networks, Anomaly detection and network surveillance, Bootstrap and related resampling methods, Community structure in networks, Random graph models, Big data, Time series, Spatial data, Statistical computing, Machine learning.

PUBLICATIONS 1. **Sengupta, S.** and Chen, Y. (2018). A blockmodel for node popularity in networks with community structure. *Journal of the Royal Statistical Society: Series B*, **80(2)**, 365-386.  
2. **Sengupta, S.**, Volgushev, S., and Shao, X. (2016). A subsampled double bootstrap for massive data. *Journal of the American Statistical Association (Theory and Methods)*, **111**, 1222-1232.  
*Finalist: ASA Nonparametric Statistics Student Paper Award, 2015.*

3. **Sengupta, S.** and Chen, Y. (2015). Spectral clustering in heterogeneous networks. *Statistica Sinica*, **25**, 1081-1106.
4. **Sengupta, S.**, Shao, X., and Wang, Y. (2015). The dependent random weighting. *Journal of Time Series Analysis*, **36**, 315-326.  
*Invited paper for the special issue on “Recent developments in bootstrap methods for dependent data”.*
5. **Sengupta, S.** (2010). Modeling the zero coupon yield curve: A regression based approach. In *Proceedings of 12th Global Conference of Actuaries*.

AWARDS	<ol style="list-style-type: none"> <li>1. Dean’s Discovery Fund, Virginia Tech College of Science 2017</li> <li>2. Early Career Faculty Mentoring Award, Virginia Tech 2017</li> <li>3. IMS Travel Award 2016</li> <li>4. Norton Prize for Outstanding PhD Thesis, University of Illinois 2015</li> <li>5. IISA student paper award (finalist) 2015</li> <li>6. ASA Nonparametric Statistics Section student paper award (finalist) 2015</li> <li>7. NSF travel award, Statistics for Complex Systems 2015</li> <li>8. Graduate College travel award, University of Illinois 2013, 2014, 2015</li> <li>9. Birla Sun Life Excellence award, Institute of Actuaries of India 2009</li> <li>10. Dean’s List for exceptional performance, Indian Statistical Institute 2004</li> </ol>
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INVITED TALKS AT CONFERENCES	<ol style="list-style-type: none"> <li>1. <i>2018 International Symposium on Business and Industrial Statistics</i>, University of Piraeus, Greece, Jul 2018.</li> <li>2. <i>Biennial Conference of the International Society of Non-Parametric Statistics</i>, Salerno, Italy, Jun 2018</li> <li>3. “Efficient community detection using network subsampling”, at <i>One day workshop on Networks and Graphs</i>, Kolkata, India, Jan 2018</li> <li>4. “Modeling node popularity in networks and bootstrap methods for massive data”, at <i>Annual Conference of the International Indian Statistical Association</i>, Hyderabad, India, Dec 2017</li> <li>5. “Big data bootstrap”, at <i>Annual Conference of the International Chinese Statistical Association</i>, Vancouver, Canada, Aug 2017</li> <li>6. “Modeling node popularity in networks”, at <i>Mini Conference on Networks and Games</i>, Indian Statistical Institute, Kolkata, India, Jul 2017</li> <li>7. “Modeling node popularity in networks”, <i>Norton Lecture at Bohrer Workshop</i>, University of Illinois at Urbana-Champaign, Nov 2015</li> <li>8. “Modeling the zero coupon yield curve: A regression based approach”, at the <i>12th Global Conference of Actuaries</i>, Mumbai, India, Feb 2010</li> </ol>
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INVITED  
SEMINARS  
AND VISITS

1. *Duke University*, Mar 2018
2. *Indian Statistical Institute*, **Invited Visit**, Jan 1-31, 2018
3. *University of Michigan at Ann Arbor*, Oct 2017
4. *Indian Statistical Institute, Kolkata*, India, Jul 2017
5. *University of Florida*, Jan 2016
6. *The Ohio State University*, Jan 2016
7. *Virginia Tech*, Dec 2015

TEACHING  
EXPERIENCE

1. **Faculty instructor At Virginia Tech**

CMDA 3654	Data Analytics & Visualization	Fall 2016–Fall 2017
STAT 5504	Multivariate Methods (PhD level)	Fall 2017
2. **Graduate Student Instructor At UIUC**

STAT 200	Statistical Analysis	Spring 2013, Spring 2015
STAT 400	Stat and Prob I	Fall 2011, Spring 2012

REFEREED  
JOURNALS

- Journal of the American Statistical Association
- Bayesian Analysis
- Technometrics
- Electronic Journal of Statistics (2)
- Journal of Computational and Graphical Statistics
- Computational Statistics & Data Analysis
- Journal of Time Series Analysis

SERVICE AND  
ACTIVITIES

- Member of faculty hiring committee  
Department of Statistics, Virginia Tech Aug 2017 — Now
- Member of Colloquium committee  
Department of Statistics, Virginia Tech Aug 2017 — Now
- Member of Computing/Web committee  
Department of Statistics, Virginia Tech Aug 2016 — Now
- Member of Student Appeals Committee  
Department of Statistics, UIUC Aug 2014 — Jul 2016
- Membership in Professional Societies:
  - American Statistical Association
  - Institute of Mathematical Statistics
  - International Chinese Statistical Association
  - International Indian Statistical Association

STATISTICAL  
CONSULTING  
PROJECTS

Client: University Library, University of Illinois

Spring 2014

1. Identifying Serialized Fiction From Text Corpus

*Data:* Illinois Digital Newspaper Collections (7 million articles).

*Objective:* Separate serialized fiction pieces from news articles.

*Challenge:* Noisy, massive, and complex data (articles from 1831-2011).

*Solution:* Developed Natural Language Processing based tools for classification.

2. Newspaper usage and ranking: a cost-benefit analysis

*Data:* Daily newspaper hits for 40,000 titles for 2 years (2012-13).

*Objective:* Compare newspaper subscriptions from various vendors.

*Challenges:* Quantification of an implicit problem, usage outliers, seasonality.

*Solution:* Cost-vs-benefit analysis with usage and ranking scores.

ACTUARIAL  
QUALIFICATION

- Actuarial qualification: passed 12 exams from Institute and Faculty of Actuaries (UK)/ Institute of Actuaries of India.
  - Specialist technical subjects ST6 (Finance & Investment B) and ST9 (Enterprise risk management).
  - Core application subject CA3 (*ranked 1<sup>st</sup> in India*)
  - Core technical subjects CT1 – CT9 (complete CT series)
- Worked for two years as risk management and product pricing actuary, specializing in asset-liability matching, pricing the cost of embedded financial guarantees, value-at-risk, and economic capital