

Arka P. Ghosh

Associate Professor

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(I) Degrees:

Ph.D.	University of North Carolina (UNC), Chapel Hill, USA (Thesis: Control problems for queueing networks in heavy traffic, <i>Adv.: A. Budhiraja</i>)	Statistics	Aug. 2005
M.S.	University of North Carolina (UNC), Chapel Hill, USA	Statistics	May 2005
M.Stat.	Indian Statistical Institute (ISI), Calcutta, India (Specialization: Mathematical Statistics and Probability)	Statistics	June 2000
B.Stat.	Indian Statistical Institute (ISI), Calcutta, India	Statistics	June 1998

(II) Professional Experience:

Iowa State University appointment:

Associate Professor (tenured)	Statistics	May 2011 - present
Assistant Professor	Statistics	Aug. 2005 - May 2011
Courtesy appointment	Mathematics	Aug. 2008 - present
Courtesy appointment	Ind. & Manuf. Sys. Eng. (IMSE)	Aug. 2015 - present

(III) Teaching:

(a) Courses (average enrollments and evaluations shown)

<u>Course # & Title</u>	<u>Sem.</u>	<u>Enrol.</u>	<u>Eval.</u>
Stat 690: Intro. to Measure Theory	SS12	8	-/5
Stat 641: Foundations of Probability Theory F17	F13, F14, F15, F16	36	4.4 /5
Stat 642: Measure Theory and Probability Theory	F06, F08	20	4.6/5
Stat 542: Theory of Probability and Statistics (I)	F10(2*)	52+9	4.4/5
Stat 588 (earlier 447): Stat. Theory for Research Workers.	SS14, SS16, SS17	13	4.2/5
Stat 430: Empirical Methods for Comp. Sc. Research	S06, S07	16	4.3/5
Stat 322: Probabilistic Methods for Electr. Engineers	F05, S08, F09	45	4.4/5
Stat 305: Engineering Statistics S11(2), F11(2, c5), S12(xw, c5), SS12[c1], S14(1,c6), F14(xw,c7), S15(xw,c7), F15 (c7), F16(1,c8), S17(0,c6), SS17(0,c2), F17(0,c7), F18(c8), S19(c7)	S09(2), S10(2), F10[c4 [†]], S13, F13 (xw-2, c5), S16(c6), SS16(c2), S18(xw,c7), SS18(c2)	80	4.1/5
Stat 105: Intro to Stats for Engineers SS16 (c1), S17, SS17(c1), F17 (1,c2), S18 (0,c1), SS18, F18(1,c1), S19(c1)	F15 (1,xw,c3), S16(c2),	45	4.4/5

* includes distance section, xw: separate online section, † cn indicates coordinating n sections

(b) Course and curriculum development:

Stat 430: Developed this new course on *Empirical Methods For Computer Science Research* and taught it in Spring of 2006 and 2007. Student projects from this lead to significant parts of their dissertations and publications in the relevant fields (see [40], [39] and [43] in publications).

Stat 305 online: Developed asynchronous version of Stat 305 course that was offered as an online course in Spring of 2012.

Stat 226 online: Helped Eric Smith (lecturer, Stat.) develop asynchronous version of Stat 226 course in 2014. It was supported by the Online Course Development Grant from the LAS.

Stat 105 online: Developed asynchronous version of Stat 105 course in Summer of 2015. It was supported by the Online Course Development Grant from the LAS.

Stat 105 and 305 online (update): In Fall 2017 and Spring 2018, these two courses are being updated and adapted to Canvas LMS. It is supported by the Online Course Development Grant from the LAS.

(IV) **Advising:**

(a) Ph. D. Students:

- (1) Dong Dai (Mathematics) 2016-
- (2) Oscar Aguilar (co-advisor: A. Roitershtein, Statistics): 2016-
- (3) Keguo Huang (Mathematics): Graduated Sum. 2017
- (4) Steven Noren (co-advisor: A. Roitershtein, Math.) graduated in Spring 2017
- Recipient of Brown Grad. Fellowship (ISU) in 2015
- (5) Kubilay Dagtoros (co-advisor: A. Roitershtein, Math.) - Graduated Spring 2017
- (6) Subhomoy Ghosh (co-advisor: A. Roitershtein, Statistics) - Graduated Summer 2013
- (7) Reza Rastegar (co-advisor: A. Roitershtein, Mathematics) - Graduated Spring 2012
- Recipient of R. J. Lambert Teach. Award-2012, Math. Dept. Res. Excel. Award(ISU)-2011
- (8) Anna Peterson (co-advisor: R. Maitra, Statistics) - Graduated Spring 2011

(b) M. S. Students:

- (1) Kubilay Dagtoros (MS in Statistics) - Current
- (2) Steven Noren (concurrent MS in Statistics, co-Advisor: A. Roitershtein, Mathematics) - Grad. Spring 2017
- (3) Emily Carroll (co-Advisor: A. Roitershtein, Mathematics) - Graduated Fall 2016
- (4) Ghani Ebrahimi (IMSE) - Graduated Summer 2015
- (5) Paul Jennings (co-advisor: S. Basu, Computer Science) - Graduated Spring 2011
- (6) Wenjun Qin (co-Advisor: A. Roitershtein, Mathematics) - Graduated Summer 2011
- (7) Enhao Zhang (Statistics) - Graduated Summer 2010
- (8) Anna Peterson (co-advisor: R. Maitra, Statistics) - Graduated Spring 2008

(c) Undergraduate:

Advised 2 students in Summer of 2009 in the Research Experience for Undergraduates (REU) program organized by the departments of Statistics and Mathematics at Iowa State University (co-advised with A. Roitershtein, Mathematics). Advised honors project for 1 student in Stat 305 in Spring 2011, Spring 2014.

(d) Committees: 25 Ph.D comm. (18 since 2011) and 17 M.S comm. so far (13 since 2011).

(V) Publications:

[Authors listed alphabetically (unless mentioned otherwise), students are marked with *. I shared the research & writing equally with co-authors, unless the co-authors are students (where I played a bigger role)]

(a) Preprints and Working Papers

- [1] Large deviations principle for random walks in sparse random environments (K. Dagtoros*, A. P. Ghosh, A. Roitershtein) (*working paper*) (2018)
- [2] Control policies for queueing networks that ensure server fairness (A. P. Ghosh, K. Huang*) (*working paper*) (2018)
- [3] Out-of-Sample Performance of Different Minimum Variance Portfolio Strategies. (O. Aguilar*, A. P. Ghosh, A. Roitershtein) (*working paper*) (2018)
- [4] Spatial model of cascading outages in electrical networks. (B. A. Carreras, I. Dobson, A. P. Ghosh, and A. Roitershtein) (*working paper*) (2018)
- [5] A statistical analysis of the cost effectiveness of interventions by pharmacy technicians in reducing errors in home medication histories in hospitals. (O. Aguilar*, J. Burge, D. Dai*, A. P. Ghosh, J. Maki, C. Mitra, J. Webb) (*working paper*) (2018)
- [6] Modeling and analysis of queueing networks in Internet of Things (IoT) applications (D. Dai*, A. P. Ghosh) (*working paper*) (2018)
- [7] Consistency of Maximum Likelihood Estimator for Ballistic Random Walk in a Parametric Random Environment (K. Dagtoros*, A. P. Ghosh, A. Roitershtein) (*working paper*) (2018)
- [8] Evaluating staffing algorithms for queueing networks using real data from call-centers. (D. Dai*, A. P. Ghosh, K. Huang*) *Submitted*. (2018)
- [9] Favorite Sites of a Persistent Random Walk. (A. P. Ghosh, S. Noren*, A. Roitershtein) *Submitted*. (2018)
- [10] Rate Control of a Queue with Quality-of-Service Constraint under Bounded and Unbounded Action Spaces. (A. Ebrahimi*, A. P. Ghosh). *Submitted*. (2018)

(b) Published Journal Articles (refereed)

- [11] Merging K-means with hierarchical clustering for identifying general-shaped groups. (A. D. Peterson*, A. P. Ghosh, R. Maitra) [Student author listed first] *Stat* Volume7, Issue 1, 2018, e172, <http://onlinelibrary.wiley.com/doi/10.1002/sta4.172/epdf> (2018)
- [12] Asymptotically Optimal Control of N -Systems with Many-Server and H_2^* Service Times. (A. P. Ghosh, K. Huang*) *Queueing Systems*, Vol. **86**(1), p. 35-60 (2017)
- [13] Iterated Rouths Triangles (E. Carroll*, A. P. Ghosh, X. H. Nguyen and A. Roitershtein) *Journal for Geometry and Graphics* (**21**) **2** p. 153–168, (2017)
- [14] On the range of the transient frog model on \mathbb{Z} . (A. P. Ghosh, S. Noren*, A. Roitershtein) *Advances in Applied Probability*. **49.2**, p. 327-343, (2017)
- [15] Discrete-time Ornstein-Uhlenbeck process in a stationary dynamic environment. (A. P. Ghosh, W. Qin*, A. Roitershtein). *Journal of Interdisciplinary Mathematics*. 19 (1): 1–35 (2016)
- [16] Colored maximal branching process. (O. Aydogmus, A. P. Ghosh, S. Ghosh*, A. Roitershtein). *Theory of Probability and its Applications.*, 59 (4): 663–672 (2015).
- [17] Scheduling control for Markov-modulated single-server multiclass queueing systems in heavy traffic (A. Budhiraja, A. P. Ghosh, X. Liu). *Queueing Systems* 78(1): 57–97, (2014)
- [18] A directionally reinforced random walk. (A. P. Ghosh, R. Rastegar*, A. Roitershtein). *Proceedings of the American Mathematical Society*. 142(9): 3269–3283 (2014)

- [19] Optimal Rate for a Queueing System in Heavy Traffic with Superimposed On-Off Arrivals (A. P. Ghosh). *Stochastic Models*, Vol.29 (4), 2013, pages 497-517 (2013).
- [20] Heavy traffic approximations of a queue with varying service rates and general arrivals. (R.T. Buche, A. P. Ghosh and V. Pipiras). *Stochastic Models*. Vol.28 (1), p. 63–108, (2012).
- [21] Controlled Stochastic Networks in Heavy Traffic: Convergence of Value Functions., (A. Budhiraja and A. P. Ghosh). *Annals of Applied Probability*, Volume 22, Number 2, pp 734-791 (2012).
- [22] A Two-phase Approximation for Model Checking Probabilistic Un-Bounded Until Properties of Probabilistic Systems (P. Jennings*, A. P. Ghosh and S. Basu). [Authors listed with student first] *Trans. on Software Eng. & Methodology (TOSEM)*. Vol. 21, No. 3, Article 18, (2012). <https://dl.acm.org/citation.cfm?doid=2211616.2211621>
- [23] An Ergodic Rate Control Problem for Single Class Queueing Networks. (A. Budhiraja, A. P. Ghosh and C. Lee), *SIAM J. Control Optim.* 49, pp. 1570-1606 (2011).
- [24] Large deviation bounds for functionals of Viterbi paths. (A. P. Ghosh, A. Roitershtein, E. Kleiman*). *IEEE Transactions on Information Theory*. Vol.57 (6) p. 3932–3937 (2011).
- [25] Random linear recursions with dependent coefficients. (A. P. Ghosh, A. Roitershtein, D. Hay*, V. Hirpara*, R. Rastegar*, A. Schulties*, J. Suh.) *Stat. & Probab. letters*. 80, p. 1597 –1605 (2010).
- [26] Optimal buffer size and dynamic rate control for a queueing network with reneging in heavy traffic. (A. P. Ghosh and A. Weerasinghe), *Stochastic Processes & their Appl.* 120, p. 2103-2141. (2010).
- [27] Heavy Traffic Analysis of a Simple Closed Loop Supply Chain. (A. P. Ghosh, S. M. Ryan, L. Wang, A. Weerasinghe), *Stochastic Models*, 26: p. 549 – 593, (2010).
- [28] Optimal control of a stochastic network driven by a fractional Brownian motion input. (A. P. Ghosh, A. Roitershtein and A. Weerasinghe), *Advances in Applied Probability*, Vol. 42, p. 183-209 (2010).
- [29] Growth of preferential attachment random graphs via continuous-time branching processes. (K. B. Athreya, A. P. Ghosh and S. Sethuraman), *Proceedings Mathematical Sciences*, Volume **118**, Number 3 / August, 2008, p. 473-494, (2008).
- [30] Optimal buffer size for a stochastic processing network with a drift (A. P. Ghosh and A. Weerasinghe) *Queueing systems*, Volume **55**, Number 3 / March, 2007, p. 147 - 159 (2007).
- [31] Diffusion approximations for controlled stochastic networks: An asymptotic bound for the value function. (A. Budhiraja and A. P. Ghosh), *Annals of Applied Probability*, **16**(4), p. 1962-2006 (2006).
- [32] A large deviations approach to asymptotically optimal control of crisscross network in heavy traffic. (A. Budhiraja and A. P. Ghosh), *Annals of Applied Probability*, Vol 15, no. 3, p. 1887-1935 (2005).
- [33] A simple statistical method for recognition of hand-written numerals. *Calcutta Statistical Association Bulletin*, 54, no. 213-214, p. 81-91 (2003).

(c) Book Chapters (refereed)

- [34] Book Chapter: ‘Introduction to Diffusion Processes.’ *Wiley Encyclopedia of Operations Research and Management Science (EORMS)* (2011).
- [35] Book Chapter: ‘Backward and Forward equations for Diffusion processes.’ *Wiley Encyclopedia of Operations Research and Management Science (EORMS)* (2011).
- [36] Heavy traffic methods in wireless systems: towards modeling heavy tails and long range dependence. (R. T. Buche, A. P. Ghosh, V. Pipiras, and J. X. Zhang). *IMA Volumes in Mathematics and its Applications Series, Vol. 143: Wireless Communications, Springer-Verlag*. (Editors: P. Agrawal, D. M. Andrews, P. J. Fleming, G. Yin, and L. Zhang) vol 143, 2007, X, p. 53-74, (2007).

(d) Published Articles in Conference Proceedings (refereed)

- [37] A Bounded Statistical Approach for Probabilistic Model Checking of Unbounded Until Properties. (R. He, H. Wu, A. P. Ghosh, S. Basu). *The Proceedings of 25th IEEE/ACM International Conf. on Automated Software Engineering, Antwerp, Belgium.* (2010).
- [38] Approximate Model Checking of PCTL involving Unbounded Path Properties. (S. Basu, A. P. Ghosh and R. He) *Lecture Notes in Computer Science. Springer Berlin / Heidelberg* Volume 5885, P. 326-346 (2009).
- [39] Modeling of available bandwidth of end-to-end paths. (W. Putthividhya, A. P. Ghosh and W. Tavanapong), *Proceedings of IEEE International Symposium on Parallel and Distributed Processing and Applications (ISPA 2008), Sydney, Australia*, p. 27-34 (2008).
- [40] Estimating statistical significance of pairwise protein local alignments using a clustering classification approach based on amino-acid composition . (A. Agrawal, A. P. Ghosh and X. Huang), *Bioinformatics Research and Applications: Lecture Notes in Computer Science*, Volume 4983/2008, Springer Berlin-Heidelberg, p. 473-494, (2008).
- [41] Heavy traffic limits in a wireless queueing system with long range dependence (R. T. Buche, A. P. Ghosh and V. Pipiras), *Proceedings of the IEEE Conference on Decision and Control*, New Orleans, LA, December 2007, p. 4447–4452 (2007).

(e) Softwares:

- [42] *PRISM-U2B*. (S. Basu, A. P. Ghosh, R. He and P. Jennings). A tool that extends (using the method in [38]) the scope of the PRISM model-checker (<http://www.prismmodelchecker.org/>) for estimating probability for satisfying unbounded until PCTL properties.
<http://www.cs.iastate.edu/~sbasu/pmck/>

(f) Unrefereed Publications:

- [43] Statistical Verification and Validation of an Energy-Balanced Model for Data Transmission in Sensor Networks. (N. V. Subramanian and A. P. Ghosh), *ISU Comp. Science Technical Report*, (2007).

(VI) **Honors and Awards:**

(a) Grants (Received):

- (1) Simons Foundation: Collaboration Grant for Mathematicians: *Stochastic modeling & analysis of networks*. (PI). \$42K, (Sept. 2018 - Aug. 2022).
- (2) *Online Course Development Grant* (2017) from the college of Liberal Arts and Sciences at Iowa State: for update of Stat 105 and 305 online course \$8000.
- (3) *Online Course Development Grant* (2015) from the college of Liberal Arts and Sciences at Iowa State: for conversion of Stat 105 as an online course \$9000.
- (4) *Online Course Development Grant* (2013) from the college of Liberal Arts and Sciences at Iowa State: for conversion of Stat 226 as an online course \$9000.
- (5) *Faculty Professional Development Assignment (FPDA) Grant*: Fall 2012.
- (6) *Online Course Development Grant* (2011) from the college of Liberal Arts and Sciences at Iowa State: for conversion of Stat 305 as an online course \$9000.
- (7) *IMA Participating Institutions (PI) Conference Proposal (2009)* for organizing Ames Symposium in Probability and Statistics, (in honor of Krishna B. Athreya) September 18-19, Ames, Iowa, 2009, \$3000.
- (8) NSF Proposal DMS-0608634 (2006): *Collaborative Research: Heavy Traffic Limit Models and Control Analysis for Wireless Queueing Systems - Incorporating Long Range Dependence and*

Heavy Tails. I am the PI on this grant, with my part being \$191064, Sept 2006 - Aug 2010. Other Collaborators R.T. Buche (NC state) and V. Pipiras (UNC-Chapel Hill)).

(b) Awards:

- (1) *LAS Award for Early Achievement in Research* (2011), Iowa State University.
- (2) Nominated for the *LAS Award for Early Achievement in Teaching* (2009) from the department of Statistics, Iowa State University.
- (3) *Bose-Nandi Award* (2005). For the best paper in Applied Statistics in Calcutta Statistical Association Bulletin for the publication [33]. (Calcutta Statistical Association).
- (4) *Laha Award* (2005). To attend the Joint Statistical Meetings/IMS Annual Meeting. (Institute of Mathematical Statistics)
- (5) *Excellence in Teaching Award* (2004). For undergraduate teaching (Department of Statistics and Operations Research, University of North Carolina, Chapel Hill).
- (6) *SAMSI Graduate Student Fellowship* (2003-2004). Research fellow in the program of “Network Modeling for the Internet” in Statistical and Applied Mathematical Sciences Institute (SAMSI), North Carolina.
- (7) *Wassily Hoeffding Fellowship* (2001). For best performance in the first year of PhD program (Statistics Dept., University of North Carolina, Chapel Hill).
- (8) *Prasanta Chandra Mahalanobis Gold Medal* (2000). For most outstanding student in M-Stat program (Indian Statistical Institute, Kolkata, India).

(VII) **Presentations:**

[Presentations by co-authors are not listed]

(a) Invited:

- (1) “TBA” Tulane Mathematics Colloquium, Tulane University, New Orleans, LA (April 2019).
- (2) “History of heavy traffic analysis and some recent results.” Department Seminar, Theoretical Statistics and Mathematics Unit, Indian Statistical Institute - Delhi (Jan 2019).
- (3) “History of heavy traffic analysis and some recent results.” Monday Colloquium, Theoretical Statistics and Mathematics Unit, Indian Statistical Institute - Kolkata (Jan 2019).
- (4) “On the range of the transient frog model on \mathbb{Z} ” Tenth International Triennial Calcutta Symposium on Probability & Statistics, Kolkata, India. (Dec. 2018)
- (5) “On the range of the transient frog model on \mathbb{Z} ” Annual meeting of International Indian Statistical Assoc.(IISA), Univ. of Florida, Gainesville (May 2018)
- (6) “Asymptotically Optimal Control of N -Systems with Many-Server and H_2^* Service Times.” Annual meeting of International Indian Statistical Assoc.(IISA), Hyderabad, India, (Dec 2017)
- (7) “Asymptotically Optimal Control of N -Systems with Many-Server and H_2^* Service Times.” 2017 INFORMS Annual Meeting, Houston, TX (Oct. 2017)
- (8) “Optimal Pricing & Production Rates in a Remanufacturing Network in Heavy Traffic.” Annual meeting of International Indian Statistical Association (IISA), Oregon State University, Eugene, Oregon (Aug. 2016).
- (9) “Scheduling Control for Markov Modulated Single-server Multiclass Queueing Systems in Heavy Traffic.” Department Colloquium, Department of Statistics and Applied Probability, National University of Singapore, Singapore. (Jan. 2016).
- (10) “Scheduling Control for Markov Modulated Single-server Multiclass Queueing Systems in Heavy Traffic.” Ninth International Triennial Calcutta Symposium on Probability & Statistics, Calcutta, India. (Dec. 2015).

- (11) "Scheduling Control for Markov Modulated Single-server Multiclass Queueing Systems in Heavy Traffic." INFORMS Applied Probability Society (APS) meeting in Istanbul, Turkey (July 2015)
- (12) International Statistics Conf. 2014, Colombo, Sri Lanka (IASSL) (Dec 2014) (could not attend)
- (13) "Optimal rate for a queueing system in heavy traffic with superimposed On-Off arrivals." Annual meeting of International Indian Statistical Association (IISA), University of California, Riverside, CA (July 2014)
- (14) "Optimal rate for a queueing system in heavy traffic with superimposed On-Off arrivals." INFORMS Annual Meeting, Minneapolis (Oct. 2013)
- (15) "Optimal control of a stochastic processing network with a fractional Brownian motion input." INFORMS Applied Probability Society (APS) conference, San Jose, Costa Rica (Jul. 2013)
- (16) "Optimal control of a stochastic processing network with a fractional Brownian motion input." Special Session: Stochastic Processes with Applications to Physics and Control, AMS Sectional Meeting, Ames, IA (Apr. 2013)
- (17) The International Conference on the Theory, Methods and Applications of Nonlinear Equations, Texas A&M, Kingsville (Dec. 2012) (could not attend)
- (18) Eighth International Triennial Calcutta Symposium on Probability and Statistics, Kolkata, India (Dec. 2012). (could not attend)
- (19) The Intern'l Workshop in Applied Probability, Jerusalem, Israel (June 2012). (could not attend)
- (20) "Optimal buffer size and service rate for a queueing network in heavy traffic with customer abandonment." American Mathematical Society's Regional Meeting, University of Kansas, Lawrence, Kansas (March 2012)
- (21) "Technology: How it can/has change(d) teaching/learning." Guest lecture, Kaplan University, Des Moines, Iowa (May 2011).
- (22) "Optimal buffer size and service rate for a queueing network in heavy traffic with customer abandonment." IISA Conference on Probability, Statistics, and Data Analysis, North Carolina State University, Raleigh, North Carolina (Apr. 2011).
- (23) "Optimal buffer size and service rate for a queueing network in heavy traffic with customer abandonment." Statistics seminar, Dept. of Statistics, Univ. of Missouri, CO, (Mar. 2011).
- (24) The First International Conference on Theory and Applications of Statistics, Dhaka University, Bangladesh (Dec. 2010).
- (25) Statistics Colloquium, Department of Statistics, Texas A&M University, (Feb. 2010).
- (26) International Conference on Statistics, Probability, Operation Research, Computer Science and Allied Areas, Visakhapatnam, India (Jan. 2010).
- (27) Department Colloquium, Department of Mathematics, Tulane University, New Orleans, LA (Nov. 2009).
- (28) Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting 2009, San Diego CA, (Oct. 2009).
- (29) Statistics seminar, Department of Statistics, Colorado State University, (Oct. 2008).
- (30) International Symposium on the Mathematical Theory of Networks and Systems (MTNS 2008), Virginia Tech., Blacksburg, VA, (July-Aug., 2008).
- (31) International conference on Recent Advances in Probability, Indian Statistical Institute, Calcutta, India (part of the institution's Platinum Jubilee (75th year) celebration). (Dec. 2007).
- (32) Probability/Comp. Finance seminar, Department of Mathematical Sciences, Carnegie Mellon University. (Oct. 2007).
- (33) The 14th Applied Probability Society of Institute for Operations Research and the Management Sciences (INFORMS) Conference, in Eindhoven University of Technology & EURANDOM, Eindhoven, Netherlands. (July 2007).

- (34) Spring Colloquium, Department of Statistics and Actuarial Sci., Univ. of Iowa. (Feb. 2007).
- (35) Seminar, Statistical Sciences Group, Los Alamos National Laboratory. (Jan. 2007).
- (36) Seminar, Theoretical Statistics and Mathematics Unit, Indian Statistical Institute, Calcutta, India (June 2006).
- (37) 12th International Conference on Statistics, Combinatorics, Mathematics and Applications (SCMA), Auburn University. (Dec. 2005).
- (38) Invited Seminar, Dept. of Statistics, Iowa State University, Ames, IA (Feb. 2005).
- (39) Invited Seminar, Dept. of Statistics, University of Michigan, Anna Arbor, MI (Feb. 2005).
- (40) Invited Seminar, Dept. of Statistics, University of South Carolina, Columbia, SC (Jan. 2005).

(b) Contributed:

- (1) The Fifth International Workshop in Applied Probability, Madrid, Spain (July 2010).
- (2) Statistical modelling and inference for networks (Statworks), Bristol, UK (June - July 2010).
- (3) Conference on Stochastic Processes & their Applications, Berlin, Germany (July 2009).
- (4) Probability at Warwick Workshop (P@W, 2009), Warwick University, U.K. (July 2009).
- (5) Conference on Stochastic Processes and their Applications, UIUC. (July 2007).
- (6) 6th International Triennial Calcutta Symp. on Probability & Stat, Calcutta, India. (Dec. 2006).
- (7) Conference on Stochastic Processes & their Applications, Paris, France. (July 2006).
- (8) Joint Statistical Meeting, Minneapolis. (Aug. 2005).
- (9) Conference on Stochastic Processes & their Applications, Santa Barbara (July 2005).
- (10) Joint Statistical Meeting, San Francisco. (Aug. 2003).
- (11) Workshop on Congestion Control and Heavy Traffic Modeling, Statistical and Applied Mathematical Sciences Institute (SAMSI) (2003).
- (12) 5th International Triennial Calcutta Symp. on Probab. & Stat., Calcutta, India. (Dec. 2003).

(VIII) **Service:**

(a) Editorial Work:

- (1) *Managing Editor (2010-2017) of Stochastic Systems:*
Stochastic Systems is a new open-access online journal of the Applied Probability Society (APS) of the Institute for Operations Research and the Management Sciences (INFORMS) and the Institute of Mathematical Statistics (IMS). (<http://www.i-journals.org/ssy/>)

(b) Conferences Organization :

- (1) Organizer (& chair) of the session on Queueing Networks, Judge for student poster competition. *Annual meeting of International Indian Stat. Assoc.*, Hyderabad, India (Dec 2017)
- (2) Organizer of a session on Modeling and Analysis of Queueing Systems, *Annual meeting of International Indian Statistical Assoc. (IISA)*, Oregon State Univ, Eugene, Oregon (Aug. 2016).
- (3) Chair of the session on Stochastic Systems in *INFORMS Applied Probability Society (APS) meeting* in Istanbul, Turkey (July 2015)
- (4) Organizer (and chair) of the session on Queueing Networks, *Annual meeting of International Indian Statistical Association (IISA)*, Riverside, CA (July 2014)
- (5) Organizer, Session Chair, *AMS Sectional meeting* in Ames, IA (April 2013)
- (6) Organizer, *Ames Symposium of Probability and Statistics (ASPS)*, Ames, Iowa (Sept. 18-19) sponsored by IMA, Departments of Statistics, Mathematics, Economics, Computer Science, College of Arts and Sciences and the Provosts office of Iowa State University. (Sept 2009).

- (7) Session Chair, Invited Session on Statistical theory and methods, *Conference Celebrating the 75th anniversary of the Statistical Laboratory*, Department of Statistics and Statistical Laboratory, Iowa State University, Ames IA, (June 2009)
- (8) Chair of the Contrib. Program, *Spring Research Conference (SRC)*, Ames, Iowa, (May, 2007).

(c) University/College Committees:

I have been in the these committees in the College of Liberal Arts and Sciences (LAS) at ISU:
 2013-2016 Representative for the Statistics department in the *LAS Assembly*.
 2010-2013 Representative for the Statistics department in the *LAS Assembly*.
 2011-2012 Executive Committee of the LAS Assembly.

(d) Departmental Committees:

Strategic Planning/External Review Committee	'05
MS/Ph.D Prelim Exam Committee	'06, '07, '08, '09, '16, '17, '18
Admissions Committee	'06, '07, '08
Graduate Committee	'09
Curriculum Committee	'09
Question Writer for MS/Ph.D Exams	'07, '09, '10, '11, '13, '14, '16, '18
Seminar Chair	F'10, S'13, F'15
Local Conferences Committee	'09
Snedecor Hall Renovation Committee	'07, '08
Library Committee	'05, '06
Faculty Search Committee	'12 (sub), '13, '14(Chair), '18(Math)
Undergraduate Committee	'13, '15, '16, '17, '18
Promotion and Tenure	'14(Math), '16(Math)
Online education coordinator	'14, '15, '16, '17, '18
Committee on Instruction	'14

(e) Refereeing for Journals/Conferences:

- (1) *Annals of Applied Probability*,
- (2) *Queueing Systems*,
- (3) *SIAM Journal on Control and Optimization*,
- (4) *Electronic Journal of Probability*,
- (5) *Journal of Applied Probability*,
- (6) *Electronic Communications in Probability*.
- (7) *Statistical Methodology*,
- (8) *Mathematics of Operations Research*,
- (9) *Operations Research*,
- (10) *Sankhyā (Series A)*,
- (11) *Acta Applicandae Mathematicae*,
- (12) *The American Statistician*,
- (13) *Computers & Operations Research*,
- (14) *Journal of Statistical Planning and Inference*,
- (15) *NSA Mathematical Sciences Grants Program*,
- (16) *2008 American Control Conference (Seattle, Washington)*.
- (17) *Nonlinear Analysis: Hybrid Systems*.

- (18) *Stochastic Systems*
- (19) *Netherlands Organisation for Scientific Research (NWO) – the Dutch Research Council*
- (20) *Mathematical Reviews*
- (21) *Stochastic Processes and Their Applications*

(f) Membership in Professional Organization:

- (1) *Institute of Mathematical Statistics (IMS)*. Member since 2000, (Life-)member since 2008.
- (2) *American Statistical Association (ASA)*. Member since 2000.
- (3) *Society for Industrial and Applied Mathematics (SIAM)*. Member since 2005.
- (4) *Applied Probability Society (APS)* - subdivision of *Institute for Operations Research and the Management Sciences (INFORMS)*: Member since 2007.
- (5) *Calcutta Statistical Association (CSA)*. (Life-)member since 2006.
- (6) *International Indian Statistical Association (IISA)*. (Life-) member since 2009.

(g) Synergistic Activities:

- (1) Mentor for F. Sabzikar (Assistant Prof., Stat). 2017-2019.
- (2) Faculty advisor (Student Org): *Bangladeshi Comm. of Iowa State Univ. (BCISU)*. 2009-2016.
- (3) Faculty mentor for the *Research Experiences for Undergraduates (REU)* program sponsored by the NSF, organized by the Math. & Statistics Departments of Iowa State, (Summ. '09).
The final project has been submitted for publications and listed as [25] in the publication list.
- (4) Faculty mentor of V. Kalivarapu in the *Preparing Future Faculty (PFF)* program by Center for Excellence in Teaching (CELT) in Iowa State (Fall 2007).