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EDUCATION

- DOCTOR OF PHILOSOPHY
Laboratory for Information and Decision Systems (LIDS), September 2012 - June 2017
Massachusetts Institute of Technology, Cambridge, MA
Advisor: **Prof. Eytan Modiano**
Committee: Eytan Modiano, Leandros Tassiulas, David Gamarnik
Cumulative GPA : **5.0 out of 5.0**
- MASTER OF TELECOMMUNICATION ENGINEERING
Dept. of Electrical Communication Engineering (ECE), August 2010 - August 2012
Indian Institute of Science, Bangalore, India
Advisor: **Prof. Anurag Kumar**
Cumulative GPA : **7.6 out of 8.0**
- BACHELOR OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Dept. of Electronics and Telecommunication Engineering (ETCE), August 2006 - July 2010
Jadavpur University, Kolkata, India
Thesis Advisor: **Prof. Swagatam Das**
Cumulative GPA : **9.36 out of 10.0**

WORK
EXPERIENCE

- **Qualcomm Research, San Diego, CA** Present
Senior Engineer
- **Nokia Bell Labs, Murray Hill, NJ** June 2016 - August 2016
Summer Intern,
Fixed Networks and Mathematics of Networks
- **Microsoft, Redmond, WA** June 2014 - August 2014
Summer Intern,
Microsoft Azure and Microsoft Research

RESEARCH
INTERESTS

- NETWORKING AND COMMUNICATION: Queueing Theory, Network Control, Information Theory.
- LEARNING, OPTIMIZATION AND DECISION THEORY: Convex Optimization, Markov Decision Processes, Bandit Problems, Applied Probability.

Publications

Journal Pre-prints/ Under Review

1. I. Kadota, **A. Sinha**, E. Modiano, "SCHEDULING ALGORITHMS FOR OPTIMIZING AGE OF INFORMATION IN WIRELESS NETWORKS WITH THROUGHPUT CONSTRAINTS", *Under review in IEEE/ACM Transactions on Networking*.

2. I. Kadota, **A. Sinha**, E. Uysal-Biyikoglu, R. Singh, E. Modiano, “AGE OF INFORMATION GUARANTEES FOR SCHEDULING POLICIES IN BROADCAST WIRELESS NETWORKS”, *Under review in IEEE/ACM Transactions on Networking*.
3. **A. Sinha**, L. Tassiulas, E. Modiano, “THROUGHPUT-OPTIMAL BROADCAST IN WIRELESS NETWORKS WITH DYNAMIC TOPOLOGY”, *Under review in IEEE Transactions on Mobile Computing*.

Journal Papers

1. **A. Sinha**, E. Modiano, “OPTIMAL CONTROL FOR GENERALIZED NETWORK FLOW PROBLEMS”, *IEEE/ACM Transactions on Networking*, pp 1-14, issue 99, Dec 2017.
2. **A. Sinha**, G. Paschos, E. Modiano, “THROUGHPUT-OPTIMAL MULTI-HOP BROADCAST ALGORITHMS”, *IEEE/ACM Transactions on Networking*, June, 2017.
3. **A. Sinha**, P. Mani, J. Liu, A. Flavel, D. Maltz, “DISTRIBUTED LOAD MANAGEMENT ALGORITHMS IN ANYCAST-BASED CDNS”, *Computer Networks, Elsevier*, 2017.
4. **A. Sinha**, G. Paschos, C.P. Li, E. Modiano, “THROUGHPUT-OPTIMAL MULTIHOP BROADCAST ON DIRECTED ACYCLIC WIRELESS NETWORKS”, in *IEEE/ACM Transactions on Networking*, no. 99, pp. 1-15, 2017.
5. A. Chattopadhyay, **A. Sinha**, M. Coupechoux, A. Kumar, “DEPLOY-AS-YOU-GO WIRELESS RELAY PLACEMENT: AN OPTIMAL SEQUENTIAL DECISION APPROACH USING THE MULTI-RELAY CHANNEL MODEL”, *IEEE Transactions On Mobile Computing*, 2017.
6. **A. Sinha**, A. Chattopadhyay, K.P. Naveen, P. Mondal, M. Coupechoux, A. Kumar, “OPTIMAL SEQUENTIAL WIRELESS RELAY PLACEMENT ON A RANDOM LATTICE PATH”, *Ad Hoc Networks, Elsevier*, vol. 21, pp. 1-17, 2014.
7. **A. Sinha**, S. Das, B.K. Panigrahi, “A LINEAR STATE-SPACE ANALYSIS OF THE MIGRATION MODEL IN AN ISLAND BIOGEOGRAPHY SYSTEM”, *IEEE Transactions on Systems, Man and Cybernetics Part-A*, vol. 41, no. 2, pp. 331-337, 2011.

Refereed Conference Papers

1. **A. Sinha**, E. Modiano, NETWORK UTILITY MAXIMIZATION WITH HETEROGENEOUS TRAFFIC FLOWS. Accepted. To appear in **WiOpt 2018**, Shanghai, China.
2. I. Kadota, **A. Sinha**, E. Modiano, “OPTIMIZING AGE OF INFORMATION IN WIRELESS NETWORKS WITH THROUGHPUT CONSTRAINTS”. Accepted. To appear in **IEEE INFOCOM, 2018**, Honolulu, HI, USA (**Best Paper Award**).
3. J. Zhang, **A. Sinha**, J. Llorca, A. Tulino, E. Modiano, “OPTIMAL CONTROL OF DISTRIBUTED COMPUTING NETWORKS WITH MIXED-CAST TRAFFIC FLOWS”. Accepted. To appear in **IEEE INFOCOM, 2018**, Honolulu, HI, USA.
4. **A. Sinha**, E. Modiano, “THROUGHPUT-OPTIMAL BROADCAST IN WIRELESS NETWORKS WITH POINT-TO-MULTIPOINT TRANSMISSIONS”, *Proceedings of the 18th ACM International Symposium on Mobile Ad Hoc Networking and Computing, (MobiHoc)*, 2017, Chennai, India.
5. **A. Sinha**, E. Modiano, “OPTIMAL CONTROL FOR GENERALIZED NETWORK-FLOW PROBLEMS”, *Proceedings of IEEE INFOCOM, 2017*, Atlanta, GA.
6. **A. Sinha**, L. Tassiulas, E. Modiano, “THROUGHPUT-OPTIMAL BROADCAST IN WIRELESS NETWORKS WITH DYNAMIC TOPOLOGY”, *Proceedings of the 17th ACM International Symposium on Mobile Ad Hoc Networking and Computing, (MobiHoc)*, 2016, Paderborn, Germany (**Best Paper Award**).

7. **A. Sinha**, G. Paschos, E. Modiano, “THROUGHPUT-OPTIMAL MULTI-HOP BROADCAST ALGORITHMS”, Proceedings of the 17th ACM International Symposium on Mobile Ad Hoc Networking and Computing, (**MobiHoc**), **2016**, Paderborn, Germany.
8. **A. Sinha**, G. Paschos, C.P. Li, E. Modiano, “THROUGHPUT-OPTIMAL BROADCAST ON DIRECTED ACYCLIC GRAPHS”, IEEE **INFOCOM**, **2015**, Hong Kong, PRC.
9. **A. Sinha**, P. Mani, J. Liu, A. Flavel, D. Maltz, “DISTRIBUTED LOAD MANAGEMENT IN ANYCAST-BASED CDNS”, *53rd Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, 2015, Monticello, IL, USA.
10. A. Chattopadhyay, **A. Sinha**, M. Coupechoux, A. Kumar, “OPTIMAL CAPACITY RELAY NODE PLACEMENT IN A MULTI-HOP NETWORK ON A LINE”, *10th International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks, WiOpt*, 2012, Paderborn, Germany.

PATENTS

- “**Integrated Scheduler for Scheduling with X-Haul Capacity Constraints.**”, M. Andrews, P. Ananth, **A. Sinha**, Invention submission # 81991 at Nokia Bell Labs. US Patent application serial no: 15/630,367.

AWARDS AND HONORS

- Recipient of the **Best Paper Award** in **IEEE INFOCOM 2018**, Honolulu, HI, USA.
- Recipient of the **Best Paper Award** in *Proceedings of the 17th ACM International Symposium on Mobile Ad Hoc Networking and Computing*, **ACM MobiHoc 2016**, Paderborn, Germany.
- Recipient of Prof. Jnansaran Chatterjee Memorial **Gold Medal** and T.P. Saha Memorial **Gold Centered Silver Medal** from Jadavpur University, Kolkata in the year 2010.
- Recipient of *Senior Jagadis Bose National Science Talent Search (JBNSTS)* scholarship, 2007 (awarded to approximately 20 students annually among all branches of science and engineering in the state of West Bengal, India).

MAJOR ACADEMIC ACHIEVEMENTS

- Secured **All India Rank 2** (out of approximately 1,00,000 students) in the *Graduate Aptitude Test in Engineering (GATE)* 2010, in Electronics and Communication Engineering.
- Placed **2nd** in class in M.E. at the **Indian Institute of Science**, Bangalore (in 2012), as well as in B.E. at **Jadavpur University**, Kolkata (in 2010).
- Secured **All India Rank 16** in *West Bengal Joint Entrance Examination (WBJEE, 2006)* in the Engineering entrance test (out of approximately 80,000 students).
- Offered **ECE Distinguished Research Fellowship** from **UIUC**.

RELEVANT GRADUATE COURSES

- Stochastic Processes and Queueing Theory, Advanced Stochastic Processes, Information Theory, Statistical Learning Theory, Convex Analysis and Optimization, Game Theory, Dynamic Programming and Stochastic Control.

ACADEMIC VISITS

- **Yale Institute of Network Science**

Summer 2015

- Collaborated with Prof. Leandros Tassiulas on Throughput-Optimal Broadcasting in time-varying networks.

INVITED TALKS

IISc Bangalore (Jan 2018), IIT Bombay (Jan 2018), IIT Kanpur (Jan 2018), IIT Kharagpur (Jan 2018), IIT Madras (Nov 2017), IIT Delhi (Nov 2017), Renaissance Technologies (Rentec, in May, 2017), Qualcomm Research (March, 2017), UC San Diego (Feb, 2017), Tata Institute of Fundamental Research (Jan, 2017), Nokia Bell Labs (June, 2016), Indian Institute of Science, Bangalore (January, 2016), Yale Institute of Network Science, Yale University (June, 2015).

PROFESSIONAL/ VOLUNTARY SERVICES

- **Served as an anonymous reviewer** for many technical journals including IEEE/ACM TRANSACTIONS ON NETWORKING, TRANS. ON INFORMATION THEORY, TRANS. ON MOBILE COMPUTING, TRANS. ON WIRELESS COMMUNICATIONS, PERFORMANCE EVALUATION, TRANS. ON CONTROL OF NETWORK SYSTEMS.
- Served on the executive board of **Sangam** (the Indian student association at MIT) and served as the webmaster during the academic year 2015-2016.
- Regular problem setter and problem solver in **Brilliant** (<https://brilliant.org/>).