Faculty Name: KOUSHIK SINHA

Degree	Field	Institution	Year
Ph.D.	Computer Science	Jadavpur University, India	2007
M.S.	Computer Science	Clemson University, USA	2003
B.S.	Computer Science	Kalyani Government Engineering College, Kalyani University, India	2001

Original appointment	Assistant Professor	**Date**	August, 2015	**Years on Faculty**	6 years
Promotion to Assoc. Prof.	July, 2021	**Tenure Status**	Tenured	**Promotion to Professor**	

Employment History Prior to Joining the Department

- Nov 2013–Aug 2015: Senior Software Engineer, Qatar Computing Research Institute, Qatar
- Feb 2013–Jul 2013: Visiting Professor, Indian Statistical Institute, Bangalore, India
- Feb 2011–Nov 2013: Scientist, Hewlett-Packard Labs, Bangalore, India
- Aug 2004– Feb 2011: Lead Research Scientist, Honeywell Technology Solutions, India

Patents

1. K. Sinha and A. Datta Chowdhury, "Identification of the location of nodes distributed in ad hoc networks," United States Patent US8671168, March 2014.
2. K. Sinha, A. V. Mahasenan and P. Gonia, "System and method for determining network element criticality," United States Patent US20130163407, June 2013.
3. L. Boregowda, J. P. Meruva and K. Sinha, "Aircraft speech recognition and voice training data storage and retrieval methods and apparatus," US Patent US8370157, Feb. 2013.
4. K. Sinha, L. Boregowda and J. P. Meruva, "Speech recognition and voice training data storage and access methods and apparatus," European Patent EP2405422, Jan. 2012.
5. K. Sinha, L. Boregowda and J. P. Meruva, "Speech recognition and voice training data storage and access methods and apparatus," US Patent US20120010887, Jan. 2012.
6. K. Sinha, "Optimal time slot assignment for networks," US Patent US8072928, Dec. 2011.
7. K. Sinha and A. Datta Chowdhury, "Identification of the location of nodes distributed in ad hoc networks," US Patent US8040859, Oct. 2011.

Professional Societies: **IEEE Senior Member, ACM**

Honors and Awards:

- Senior Member, IEEE, 2015.
- Grand Prize Winner of the 9th Open Source Software (OSS) World Challenge for development of the *Artificial Intelligence for Disaster Response* (AIDR) platform, 2015.
- N. V. Gadadhar Memorial Award from the IETE, 2011.
- Young Scientist Award from the Indian Science Congress Association, 2009.
- Best Paper Award at the 20th PDCS Conference, USA, Nov. 16-18, 2008.
- Selected as an Early Experimenter for the NSF funded COSMOS Testbed, 2019.

Institutional and Professional Service

Institutional Service

- Carbondale Community High School-SIU STEM Connection Group, SIU
- Doctoral Research Award Committee, College of Science, SIU
- Tenure-Track Teaching Excellence Award Committee, SIU
- Chair Search Committee, Computer Science
- Tenure-Track Faculty Search Committee, Computer Science
- Undergraduate Program Committee, Computer Science
- Assessment Committee, Computer Science
- Course Area Committee, Software Studies, Computer Science
- Course Coordinator, Advanced Object-Oriented Programming (CS-304), Computer Science
- Course Coordinator, Mobile and Wireless Computing (CS-441), Computer Science

Professional Service

- Conference General Co-Chair: IEEE ANTS 2018
- Conference TPC Co-Chair/Vice-Chair/Track-Chair: IEEE ANTS 2016-2017, IEEE AICCSA 2014-2015
- Conference TPC Member (total 45): IEEE PIMRC, IEEE ANTS, IEEE LANMAN, IEEE WiMob, etc.

- National Science Foundation (NSF) Grant Reviewer (2018 – 2020)
- United States Department of Agriculture (USDA) Grant Reviewer (2020)
- Journal Reviewer: *IEEE/ACM Trans. on Networking*, *IEEE Trans. on Vehicular Technology*, *IEEE Wireless Communications Letters*, *IEEE Communications Letters*, *IEEE ACCESS*, etc.

Research Activities

Next Generation Mobile Networks; Dynamic Spectrum Management; IoT and Wireless Sensor Networks; Edge Computing;

Research Grants and Contracts

- **PI**: "Creating a Sustainable, Affordable, High-Impact and Reliable Ecosystem (SAFHIRE) for Bridging Digital Inequality in Southern Region of Illinois," Illinois Department of Commerce and Economic Opportunity, 02/2021-01/2022, $50,000.
- **Co-PI**: "Mapping and Spatial Analysis of Rural Broadband Access and Quality to Develop a Roadmap for Smart Farming in Illinois," Illinois Innovation Network, 07/2021-06/2022, $28,374.
- **Co-PI**: "Estimating the Burden of HIV in Semi-Urban and Rural Illinois," Illinois Innovation Network, 09/2021-08/2022, $30,000.
- **Co-PI**: "Surveying SARS-CoV-2 Genomes and Public Data in Near Real-Time for Pandemic Response in Chicago," Walder Foundation, 10/2020 – 09/2021, $499,553.
- **PI**: "Virus Contact Map (VCM): A Privacy-Preserving Platform for Modeling and Predicting the Spread and Impact of COVID-19," SIU Grant, SIU, 06/2020 – 12/2020, $14,157.

Recent Publications

Google Citation Indices: see **link**

Selected Journal Publications:

1. S. S. Sarma, K. Sinha, C. Sub-r-Pa, G. Chakraborty and B. P. Sinha, "Optimal Distribution of Traffic in Manhattan Road Networks for Minimizing Routing-Time," *IEEE Trans. on Intelligent Transportation Systems*, doi: 10.1109/TITS.2020.2994836, 2020.
2. D. Saha and K. Sinha, "Optimal Schedule for All-to-All Personalized Communication in Multiprocessor Systems," *ACM Trans. on Parallel Computing*, vol. 6(1), Article 5, 2019.
3. A. Celik, J. Tetzner, K. Sinha and J. Matta, "5G device-to-device communication security and multipath routing solutions," Applied Network Science, Springer, vol. 4(1), pp. 1-24, 2019.
4. J. Matta, G. Ercal and K. Sinha, "Comparing the speed and accuracy of approaches to betweenness centrality approximation," *Computational Social Networks*, Springer, vol. 6(1), Feb. 2019.
5. A. Bhattacharya, S. C. Ghosh, K. Sinha and B. P. Sinha, "Secure Multipath Routing for Multimedia Communication in Cognitive Radio Networks," *Intl. Journal of Comm. Networks and Dist. Systems* (IJCNDS), Inderscience, vol. 21(1), 2018.
6. A. Bhattacharya and K. Sinha, "An efficient protocol for load-balanced multipath routing in mobile ad hoc networks," *Ad Hoc Networks*, Elsevier, vol. 63, Aug. 2017, pp. 104-114.
7. A. Bhattacharya, K. Sinha, D. Datta and B. P. Sinha, "MRBNS: a new energy-efficient communication scheme in low power wireless networks," *Intl. Journal of Sensor Networks* (IJSNET), Inderscience, vol. 23(3), 2017, pp. 155-169.
8. A. Bhattacharya, R. N. Ghosh, K. Sinha, D. Datta and B. P. Sinha, "Non-contiguous channel allocation for multimedia communication in cognitive radio networks," *IEEE Trans. on Cognitive Comm. and Net.*, vol. 1(4), 2015, pp. 420-434.
9. G. K. Audhya, K. Sinha, K. Mandal, R. Dattagupta, S. C. Ghosh and B. P. Sinha, ''A new approach to fast near-optimal channel assignment in cellular mobile networks,'' *IEEE Trans. on Mobile Computing*, vol. 12(9), 2013, pp. 1814–1827.
10. S. Sen Gupta, A. Chattopadhyay, K. Sinha, S. Maitra and B. P. Sinha, "High performance hardware implementation for RC4 stream cipher," *IEEE Trans. on Computers*, vol. 62(4), April 2013, pp. 730-743.

Books:

1. K. Sinha, S. C. Ghosh and B. P. Sinha, ''Wireless Networks and Mobile Computing,'' CRC Press, Taylor and Francis Group, USA, November 2015.

Selected Conference Publications:

1. K. Sinha, P. Majumder and S. K. Ghosh, "Fully Homomorphic Encryption based Privacy-Preserving Data Acquisition and Computation for Contact Tracing," *Proc. 2020 IEEE International Conference on Advanced Networks and Telecommunications Systems* (ANTS), India, 2020, pp. 1-6.

2. S. R. Das, G. K. Audhya and K. Sinha, "Channel Assignment in Hexagonal Cellular Networks in Presence of Device-to-Device Communication," *Proc. 15th IEEE WiMob Conference*, Oct. 21-23, Spain, 2019.
3. S. S. Sarma, K. Sinha, S. R. Das and B. P. Sinha, "Fast Transportation in a Disaster Situation along Real-life Grid-structured Road Networks," *Proc. IEEE 90th Vehicular Technology Conference* (VTC2019-Fall), USA, Sept. 22-25, 2019.
4. P. Majumder, K. Sinha, L. Dash and B. P. Sinha, "CMNS: An Energy-Efficient Communication Scheme for Wireless Sensor Networks," *Proc. IEEE ANTS*, India, Dec. 16-19, 2018.
5. P. Majumder, K. Sinha and B. P. Sinha, "DCVNS: A New Energy Efficient Transmission Scheme for Wireless Sensor Networks," Proc. IEEE 88th Vehicular Technology Conference (VTC2018-Fall), USA, 2018.
6. G. K. Audhya, K. Sinha, P. Majumder, S. Das and B. P. Sinha, "Placement of Access Points in an Ultra-Dense 5G Network with Optimum Power and Bandwidth," *Proc. IEEE WCNC*, Spain, April 2018.
7. S. S. Sarma, K. Sinha, G. Chakraborty and B. P. Sinha, "Reduction of Congestion in a Manhattan Grid Road Network by Detouring of Vehicles," *Proc. IEEE ANTS*, India, Dec. 17-20, 2017.
8. S. Maity, K. Sinha and B. P. Sinha, "An Efficient Lightweight Stream Cipher Algorithm for Wireless Networks," *Proc. IEEE Wireless Communications and Networking Conference* (WCNC), San Francisco, USA, March 19-22, 2017.
9. S. Sen Sarma, K. Sinha, G. Chakraborty and B. P. Sinha, "Distributed Algorithm for Traffic Dissemination in Manhattan Networks with Optimal Routing-Time," *Proc. 32nd ACM SIGAPP SAC*, Morocco, April 4-6, 2017.