Sujoy Kumar Sikdar

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Research Interests

Artificial Intelligence, Computational Social Choice, Mechanism Design, Algorithm Design, Machine Learning, Computational Social Science.

Education

Doctor of Philosophy, Computer Science, 2012 - 2018
Rensselaer Polytechnic Institute, Troy, NY, USA.
Dissertation: Optimal Multi-Attribute Decision Making in Social Choice Problems.
Institute Nominee for the Joint AAAI/ACM SIGAI Doctoral Dissertation Award.
Supervisors: Prof. Lirong Xia, Prof. Sibel Adalı.

Master of Science, Computer Science, 2012 - 2015
Rensselaer Polytechnic Institute, Troy, NY, USA.
Thesis: Towards an Understanding of Information Credibility on Online Social Networks.
Supervisor: Prof. Sibel Adalı.

Bachelor of Engineering, Information Technology, 2005 - 2009
Manipal Institute of Technology, Manipal, KA, India.

Professional Experience

Assistant Professor, 2020 - Present
Department of Computer Science,
Thomas J. Watson College of Engineering and Applied Science,
Binghamton University, Binghamton, NY, USA.

Postdoctoral Research Associate, 2019 - 2020
Washington University in St. Louis, St. Louis, MO, USA.
Adviser: Prof. Sanmay Das.

Graduate Research Assistant, 2012 - 2018
Rensselaer Polytechnic Institute, Troy, NY, USA.
Research adviser: Prof. Sibel Adalı (2012-2016), Prof. Lirong Xia (2016-2018).

Software Developer II, 2009 - 2011
Juniper Networks, Bangalore, KA, India.

Software Intern, 2008 - 2009
Juniper Networks, Bangalore, KA, India.

Awards

Best Paper Award, 2013 International Conference on Social Computing (**SocialCom**).

Publications

1. Ge Wang, Mengzhou Li, Lei Luo, Sujoy Sikdar, Navid Ibtehaj Nizam, Shan Gao, Hongming Shan, Melanie Kruger, Uwe Kruger, Hisham Mohamed, and Lirong Xia. *Optimized Collusion Prevention for Online Exams during Social Distancing.* npj Science of Learning, 2021.
2. Xiaoxi Guo, Sujoy Sikdar, Haibin Wang, Lirong Xia, Yongzhi Cao, and Hanpin Wang. *Probabilistic Serial Mechanism for Multi-Type Resource Allocation.* Journal of Autonomous Agents and Multi-Agent Systems, 2021.

3. Sujoy Sikdar, Xiaoxi Guo, Haibin Wang, Lirong Xia, and Yongzhi Cao. *Sequential Mechanisms for Multi-type Resource Allocation.* (To Appear) In the 20th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS-21**).
4. Hadi Hosseini, Sujoy Sikdar, Rohit Vaish, and Lirong Xia. *Fair and Efficient Allocations under Lexicographic Preferences.* (To Appear) In the Thirty-Fifth AAAI Conference on Artificial Intelligence (**AAAI-21**).
5. Hadi Hosseini, Vijay Menon, Nisarg Shah, and Sujoy Sikdar. *Necessarily Optimal Matchings.* (To Appear) In the Thirty-Fifth AAAI Conference on Artificial Intelligence (**AAAI-21**).
6. Rupert Freeman, Sujoy Sikdar, Rohit Vaish, and Lirong Xia. *Equitable Allocations of Indivisible Chores.* In the 19th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS-20**).
7. Tao Xiao, and Sujoy Sikdar. *Size-Relaxed Committee Selection under the Chamberlin-Courant Rule.* In the 19th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS-20**).
8. Hadi Hosseini, Sujoy Sikdar, Rohit Vaish, Jun Wang, and Lirong Xia. *Fair Division Through Information Withholding.* In the Thirty-Fourth AAAI Conference on Artificial Intelligence (**AAAI-20**).
9. Haibin Wang, Sujoy Sikdar, Xiaoxi Guo, Lirong Xia, Yongzhi Cao, and Hanpin Wang. *Multi-type Resource Allocation with Partial Preferences.* In the Thirty-Fourth AAAI Conference on Artificial Intelligence (**AAAI-20**).
10. Haoming Li, Sujoy Sikdar, Rohit Vaish, Junming Wang, Lirong Xia, and Chaonan Ye. *Minimizing Time-to-Rank: A Learning and Recommendation Approach.* In Proceedings of the 28th International Joint Conference on Artificial Intelligence (**IJCAI-19**).
11. Rupert Freeman, Sujoy Sikdar, Rohit Vaish, and Lirong Xia. *Equitable Allocations of Indivisible Goods.* In Proceedings of the 28th International Joint Conference on Artificial Intelligence (**IJCAI-19**).
12. Sujoy Sikdar, Sibel Adalı, and Lirong Xia. *Mechanism Design for Multi-type Housing Markets with Acceptable Bundles.* In Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI-19**).
13. Hejun Wang, Sujoy Sikdar, Tyler Shepherd, Zhibing Zhao, Chunheng Jiang, and Lirong Xia. *Practical Algorithms for Multi-Stage Voting Rules with Parallel Universes Tiebreaking.* In Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI-19**).
14. Sujoy Sikdar. *Optimal Multi-Attribute Decision Making in Social Choice Problems.* (Doctoral Consortium) In Proceedings of the 27th International Joint Conference on Artificial Intelligence (**IJCAI-18**).
15. Shreyas Sekar, Sujoy Sikdar, and Lirong Xia. *Condorcet Consistent Bundling with Social Choice.* In Proceedings of the 16th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS-17**).
16. Sujoy Sikdar, Sibel Adalı, Lirong Xia. *Optimal Decision Making with CP-nets and PCP-nets.* (Short Paper) In Proceedings of the 16th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS-17**).
17. Sujoy Sikdar, Sibel Adalı, Lirong Xia. *Mechanism Design for Multi-Type Housing Markets.* In Proceedings of the 31st AAAI Conference on Artificial Intelligence (**AAAI-17**).
18. Benjamin Horne, Sibel Adalı, Sujoy Sikdar. *Identifying the Social Signals that Drive Online Discussions: A Case Study of Reddit Communities.* The 26th International Conference on Computer Communications and Networks (**ICCCN 2017**). IEEE, 2017.

19. Sujoy Sikdar, Sibel Adalı, Md Tanvir Amin, Tarek Abdelzaher, Kevin Chan, Jin-Hee Cho, Byungkyu Kang, John O'Donovan. *Finding True and Credible Information on Twitter.* 17th International Conference of Information Fusion (**FUSION-14**), pp. 1-8, July 2014.
20. Sujoy Sikdar, Byungkyu Kang, John O'Donovan, Tobias Hollerer, Sibel Adalı. *Cutting Through the Noise: Defining Ground Truth in Information Credibility on Twitter.* ASE HUMAN Journal 3(1), pp. 151-167, 2013.
21. Sujoy Sikdar, Byungkyu Kang, John O'Donovan, Tobias Hollerer, Sibel Adalı. *Understanding Information Credibility on Twitter.* 2013 International Conference on Social Computing (**SocialCom-13**), pp. 19-24, 8-14 September 2013. Received the **Best Paper Award.**

Dissertation

Sujoy Sikdar. *Optimal Multi-Attribute Decision Making in Social Choice Problems.* Ph.D. Dissertation. Co-advised by Prof. Lirong Xia and Prof. Sibel Adalı. 2018.

Workshop Papers

- Sujoy Sikdar, Sibel Adalı, Lirong Xia. *Optimal Decision Making with CP-nets and PCP-nets.* In EXPLORE-2017: The 4th Workshop on Exploring Beyond the Worst Case in Computational Social Choice (peer reviewed).

Invited Talks

- Chunheng Jiang, Sujoy Sikdar, Hejun Wang, Lirong Xia, and Zhibing Zhao. *Practical Algorithms for Computing STV and Other Multi-Round Voting Rules.* Dagstuhl Seminar 17261, Voting: Beyond Simple Majorities and Single-Winner Elections. 2017.

Professional Service

- Program Committee member: AAAI 2019-21, IJCAI 2016,18,21 WWW 2015.
- Reviewer for Journals: Journal of Artificial Intelligence Research, Artificial Intelligence Journal, Journal of Autonomous Agents and Multi-Agent Systems, Computational Intelligence, Transactions on Knowledge Discovery from Data, Transactions on Knowledge and Data Engineering, Transactions on the Web; Conferences: AAAI, AISTAT, EC, IJCAI, NIPS, WINE.

Teaching

- **Fall 2020**: CS 375 *Design & Analysis of Algorithms.* At Binghamton University.

Data Science

Machine learning and Statistics packages: scikit-learn, scipy, Weka, Tensorflow.

Natural language processing: nltk, word2vec, LIWC, IBM Watson APIs.

Optimization packages: AMPL/Cplex, Gurobi.

Social network APIs, and analytics on large scale social network datasets and large crowdsourced experiments conducted on Amazon Mechanical Turk.

Skills

Languages: Python, MATLAB, C, C++, HTML, Javascript.
Version control: Perforce, SVN, Git.

References

- **Prof. Lirong Xia**, Associate Professor, Rensselaer Polytechnic Institute
Computer Science Department, Rensselaer Polytechnic Institute
306 Lally Hall, 110 8th Street, Troy, NY 12180-3590, USA
Email: `xial@cs.rpi.edu`
Phone: +1 (518) 276-6720

- **Prof. Sibel Adalı**, Professor, Rensselaer Polytechnic Institute
  Computer Science Department, Rensselaer Polytechnic Institute
  110 8th Street, Troy, NY 12180-3590, USA
  Email: `adalis@rpi.edu`
  Phone: +1 (518) 276-3780
- **Prof. Elliot Anshelevich**, Professor, Rensselaer Polytechnic Institute
  Computer Science Department, Rensselaer Polytechnic Institute
  311 Lally Hall, 110 8th Street, Troy, NY 12180-3590, USA
  Email: `eanshel@cs.rpi.edu`
  Phone: +1 (518) 276-6491
- **Prof. Sanmay Das.**, Associate Professor, Washington University in St. Louis
  Department of Computer Science and Engineering, Washington University in St. Louis
  Campus Box 1045, Jolley Hall Suite 304, One Brookings Dr., St. Louis, MO 63130, USA
  Email: `sanmay@wustl.edu`
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