

Sajjadur Rahman

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Education

University of Illinois, Urbana-Champaign
PhD in Computer Science, August 2014 - May 2020
Advisor: Aditya Parameswaran.
Thesis Title: Intuitive, Interactive, and Scalable Multi-resolution Interfaces for Accelerating Data Exploration

Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
M.Sc. in Computer Science and Engineering. May 2012 - June 2014

Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
B.Sc. in Computer Science and Engineering. June 2007 - April 2012

Employment

Megagon Labs
Research Scientist, June 2020—Present

University of Illinois, Urbana-Champaign
Research Assistant, Department of Computer Science. June 2015—May 2020

University of Illinois, Urbana-Champaign
Teaching Assistant, Department of Computer Science. August 2014 - May 2015

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh
Lecturer, Department of Computer Science and Engineering. May 2012 - August 2014

Country of Citizenship

Bangladesh

Honors and Awards

- **Best Demo Award**, ICDE for the paper “Faster, Higher, Stronger: Redesigning Spreadsheets for scale”. Awarded to two out of 24 demonstrations, 2019.
- **NSF travel award** for attending ICDE (one of two recipients), 2019.
- **Selected Participant**, Banglalink-Huawei International Youth Camp, as a part of the Champion team of Banglalink Grandmaster Idea Contest (Season 1), 2014.
- **Best Poster Award**, Workshop on Advances in Data Management, Dhaka, Bangladesh, 2013.
- **Champion**, Banglalink Grandmaster Idea Contest (Season 1). Organized by Global Telecom Holding, 2011.
- **3rd Runner Up**, 3rd CITI Financial IT Case Competition, Organized by Citibank, N.A., 2011.
- **Dean’s List** award and **University Merit** scholarship for outstanding academic performance, from Bangladesh University of Engineering and Technology. 2008 - 2011.

Broad Interests

Interactive Data Analytics, Information Visualization, Human-computer Interaction

Publications

Refereed Full-length Papers

- Y. Shao, N. Bhutani*, **S. Rahman***, E. Hruschka. Low-resource Entity Set Expansion: A Comprehensive Study on User-generated Text. *Findings of NAACL’22: 2022 Annual Conference of the North American Chapter of the Association for Computational Linguistics*, Seattle, USA, 2022.
- **S. Rahman**, E. Kandogan. Characterizing practices, limitations, and opportunities related to text information extraction workflows: a human-in-the-loop perspective. *CHI’22: 32nd Int’l Conf. Conference on Human Factors in Computing Systems*, New Orleans, USA, 2022.

- **S. Rahman**, M. Bendre, Y. Liu, S. Zhu, N. Su, K. Karahalios, A. Parameswaran. NOAH: Interactive Spreadsheet Exploration with Dynamic Hierarchical Overviews. *VLDB'21: 47th Int'l Conf. on Very Large Databases*, Copenhagen, Denmark, 2021.
- **S. Rahman**, P. Griggs, C., Demiralp. Leam: An Interactive System for In-situ Visual Text Analysis. *CIDR'21: 11th Annual Conference on Innovative Data Systems Research (CIDR 21)*, Chaminade, USA, 2021.
- **S. Rahman**, P. Siangliulue, A. Marcus. MixTAPE:: Mixed-initiative team action plan creation through semi-structured notes, automatic task generation, and task classification. *CSCW'20: 23rd ACM Conference on Computer-Supported Cooperative Work and Social Computing*, Miami, USA, 2020.
- **S. Rahman**, K. Mack, M. Bendre, R. Zhang, K. Karahalios, A. Parameswaran. Benchmarking Spreadsheet Systems. *SIGMOD'20: Proceedings of the 2020 ACM SIGMOD International Conference on Management of Data*, Oregon, US, 2020. Acceptance Rate: ~26.9%.
- **S. Rahman**, M. Aliakbarpour, H. Kong, E. Blais, K. Karahalios, A. Parameswaran, R. Rubinfeld. I've Seen "Enough": Incrementally Improving Visualization to Support Rapid Decision Making. *VLDB'17: 43rd Int'l Conf. on Very Large Databases*, Munich, Germany, 2017. Acceptance Rate: ~20%.
- M. Vartak, **S. Rahman**, S. Madden, A. Parameswaran, N. Polyzotis, SEEDB: Efficient Data-Driven Visualization Recommendations to Support Visual Analytics, *VLDB'16: 42nd Int'l Conf. on Very Large Databases*, New Delhi, India, 2016. Acceptance Rate: ~20%.

Refereed Short/Demo Papers

- P. Griggs, C., Demiralp, **S. Rahman**. Towards integrated, interactive, and extensible text data analytics with Leam. *DASH-LA'21: 2nd Workshop on Data Science with Human-in-the-loop: Language Advances, Mexico City, Mexico, 2021*
- P. Yang, T. Cheng*, **S. Rahman***, M. Bendre, K. Karahalios, A. Parameswaran. Understanding Data Analysis Workflows on Spreadsheets: Roadblocks and Opportunities. *HILDA20: Proceedings of Workshop on Human-In-the-Loop Data Analytics*, Oregon, USA, 2020. (*: equal author contribution.)
- M. Bendre, T. Wattanawaroon, **S. Rahman**, K. Mack, Y. Liu, S. Zhu, Y. Lu, P. Yang, X. Zhou, K. Chang, K. Karahalios, A. Parameswaran. Faster, Higher, Stronger: Redesigning Spreadsheets for Scale. *ICDE19: 35th Intl Conf. on Information and Knowledge Management*, Macau, 2019. **Best Demo Award (Awarded to 2 out of 24 demos)**.

Preprints

- M. Bendre, **S. Rahman**, T. Wattanawaroon, K. Mack, Y. Lu, K. Chang, K. Karahalios, A. Parameswaran. Directed Data Management: A New Frontier in Database Usability. Technical Report. August 2018.

Other Writings

- **S. Rahman**. Leam: Integrated, Interactive, and Extensible Text Data Analysis, Megagon Labs Blog, January 2021.
- **S. Rahman**, P. Siangliulue, and A. Marcus. MixTAPE: Mixed-initiative Action Plan Creation for Teams, Medium, October 2020.
- **S. Rahman** and A. Parameswaran. Draw Conclusions Early with Incvisage, Medium, September 2017.

Invited Talk

- **Adobe Research**, San Jose, CA. Accelerating Data Analysis via Scalable Multi-resolution Systems. December 2019.
- **Megagon Labs**, Mountain View, CA. Accelerating Data Analysis via Scalable Multi-resolution Systems. December 2019.

VISA Research, Palo Alto, CA. Accelerating Data Analysis via Scalable Multi-resolution Systems. December 2019.

Major Software Releases

Leam: An interactive text analysis tool that combines the strengths of spreadsheets, computational notebooks, and interactive visualizations to facilitate integrated text analytics. Leam implements a visual text algebra to facilitate extensible and expressive analysis, supporting diverse tasks ranging from data cleaning to visualization. 2021.
URL: <https://github.com/megagonlabs/leam>

sheetperf: An exhaustive benchmark for evaluating the performance of spreadsheet systems. The sheetperf benchmark measures the scalability of spreadsheet systems for a range of canonical spreadsheet operations, and investigates how a spreadsheet system stores data and whether it adopts optimizations to speed up computation. 2020.
URL: <https://github.com/dataspread/spreadsheet-benchmark>

DataSpread: A spreadsheet-database hybrid. By providing a spreadsheet frontend, DataSpread enhances the usability of databases. DataSpread inherits the flexibility and ease-of-use of spreadsheets, as well as the scalability and computational power of databases. DataSpread can scale to billions of cells seamlessly while ensuring interactivity and navigability. 2019.
URL: <http://dataspread.github.io>

IncVisage: a progressive visualization interface. IncVisage is a tool that facilitates faster analysis of large scale datasets. IncVisage incrementally reveals features of a visualization in the order of prominence while improving the quality of the visualization gradually—from lower to higher resolution. As a result, users can gain insights within seconds and draw conclusions quickly. 2017.
URL: <https://github.com/zenvisage/incvisage>

Industry Internships

Research Intern, B12, New York Summer 2019
Developed a mixed-initiative tool for synthesizing information from heterogeneous data sources to generate and communicate action plans among creative workers for design tasks. **(Deployed in three different workflows at B12 and helped launch more than 2500 projects to date.)**

Engineering Intern, Oath, Champaign, Illinois Summer 2017
Developed a pathing visualization tool for analyzing Oath's web traffic.

Engineering Intern, Yahoo!, Champaign, Illinois Summer 2016
Developed a system that automates the management and creation of materialized views to ensure faster query responses while minimizing storage. The work was published in Techpulse, an internal Yahoo! Conference and ranked among the top 6 best papers **(best in Systems category)**.

External Service Activities

Program Committee Member:

- SIGMOD, 2022
- WIT@KDD, 2022
- BigVis, 2021
- SIGMOD, 2021
- IIT, 2018

External Reviewer:

- SIGMOD Record, 2019
- VLDB (Demo), 2019

Panel Participation:

- Plenary Panel "Interactive Querying and Visualization of Large Data" at VLDB,

2021

Organizing Committees:

- Committee Member, Workshop on Advances in Data Management, 2013.
- Committee Member, Workshop on Mobile Computation and HCI, Bangladesh, 2013.
- Committee Member, Workshop on Computational Intelligence, Bangladesh, 2012.

**Leadership and
Volunteer
Experience**

- Volunteer, Food Packaging Project for Eastern Illinois Foodbank, Summer 2017
- Treasurer, Bangladeshi Student's Association at University of Illinois, 2015-16
- Coordinator, BUET System Analysis, Design and Development Group, Bangladesh, May 2012 - August 2014
- Co-convenor, BUET CSE Festival, Bangladesh, 2013
- Organizer, Information System Design and Development Contest, Bangladesh, 2011
- Organizer, BUET CSE Festival, Bangladesh, 2011

Membership

- Member, Association for Computing Machinery (ACM)
- Member, ACM Special Interest Group on Management of Data (SIGMOD)
- Member, Association for Computational Linguistics (ACL)
- Member, IEEE Technical Committee

Mentorship

PhD Students

(Formal Advising) Megagon Labs: Yutong Shao (UCSD), Seiji Maekawa (Osaka University)

MS Students

Peter Griggs, Summer 2020 (MIT, First employment: DataDog).

(Informal Advising) Illinois: Shichu Zhu, Summer 2018 (First employment: Google); Tao Mo, Fall 2017 (First employment: Facebook); Junting Lou; Fall 2017 (First employment: Google).

Undergraduate Students (Informal Advising)

Illinois: Yuyang Liu, Summer 2018; Illinois: Ruilin Zhang, Summer 2018 (First employment: USC); Changfeng Liu, Summer 2016 (First employment: UMichigan).

Undergraduate Students (Formal Advising)

BUET: Mentored more than 60 students in course projects. May 2012 - August 2014. Sadia Nahreen, Summer 2013 (First employment: Booking.com), Mehrab Morshed (First employment: GATech),

Teaching

Instructor for CSE 102: Structured Programming Language (2012). BUET Students Enrolled: 120

Instructor for CSE 208: Data Structure and Algorithms II (2012-13). BUET Students Enrolled: 30

Instructor for CSE 100: Introduction to Computer Systems (2013). BUET Students Enrolled: 30

Instructor for CSE 307: Software Engineering and Information System Design (2014). BUET Students Enrolled: 120