RESEARCH OVERVIEW

Current areas
Conversational question answering, explainable recommenders

General areas
Natural language processing, Information retrieval, Text mining

Specialized topics
Graph neural networks (GNN), Reinforcement learning (RL)

Desiderata
Systems that are explainable, robust, efficient yet high-performing

Keywords
Question answering (QA), Knowledge graphs (KG), User studies, Applied research, Large language models (LLM), Generative AI (GenAI), Conversational AI (ConvAI), Explainable AI (xAI)

Methods used
Sequence-to-sequence models, Group Steiner trees, Fagin's threshold algorithm, Influence functions, Learning to rank, Integer linear programming, Counterfactuals, Random walks, Templates

SELECTED PUBLICATION SUMMARY

Book
Springer '22

Conference long papers
WSDM '24, SIGIR '23, SIGIR '22, WSDM '22, CIKM '21, SIGIR '21, WWW '21, WSDM '20, CIKM '19, SIGIR '19, NAACL-HLT '19, WSDM '19, WWW '18, ICDAR '17, SIGIR '17, COLING '14, ACL '13, SIGIR '12

Conference short papers
SIGIR '21, ECIR '20, CIKM '18, IJCNLP '17, CIKM '17, EMNLP '17, ECIR '17, ECIR '16, WWW '15, SIGIR '14, WWW '13, WWW '11

Journal papers
IP&M '16, Web Semantics '15
BOOK


SELECTED CONFERENCE LONG PAPERS

- Philipp Christmann, Rishiraj Saha Roy, and Gerhard Weikum, Explainable Conversational Question Answering over Heterogeneous Sources via Iterative Graph Neural Networks, SIGIR ’23.
- Philipp Christmann, Rishiraj Saha Roy, and Gerhard Weikum, Conversational Question Answering on Heterogeneous Sources, SIGIR ’22.
- Zhen Jia, Soumajit Pramanik, Rishiraj Saha Roy, and Gerhard Weikum, Complex Temporal Question Answering on Knowledge Graphs, CIKM ’21.
- **Rishiraj Saha Roy**, Aishwarya Padmakumar, Guna Prasaad Jeganathan and Ponnurangam Kumaraguru, Automated Linguistic Personalization of Targeted Marketing Messages Mining User-generated Text on Social Media, CICLing ’15. [BEST PAPER AWARD]

**SELECTED CONFERENCE SHORT PAPERS**

- David Ziegler, Abdalghani Abujabal, **Rishiraj Saha Roy**, and Gerhard Weikum, Efficiency-aware Answering of Compositional Questions using Answer Type Prediction, IJCNLP ’17.
• Nikita Mishra, Rishiraj Saha Roy, Niloy Ganguly, Srivatsan Laxman and Monojit Choudhury, Unsupervised Query Segmentation Using only Query Logs, WWW ’11.

**JOURNAL PAPERS**


**TUTORIALS AND DEMO PAPERS**

• Rishiraj Saha Roy and Avishek Anand, Question Answering over Curated and Open Web Sources, SIGIR ’20 Tutorial.
• Magdalena Kaiser, Rishiraj Saha Roy, and Gerhard Weikum, Conversational Question Answering over Passages by Leveraging Word Proximity Networks, SIGIR ’20 Demo.
• Abdalghani Abujabal, Rishiraj Saha Roy, Mohamed Yahya, and Gerhard Weikum, QUINT: Interpretable Question Answering over Knowledge Bases, EMNLP ’17 Demo.

**PATENTS**


**AWARDS AND RECOGNITIONS**

• Outstanding Senior PC Member at AAAI ’21 (February 2021)
• Outstanding Reviewer at EMNLP ’20 (December 2020)
• Selected to be among the top-80 researchers from European and Asian universities for attending the Google NLP Summit at Zürich, Switzerland (September 2017)
• **Best Paper Award** at the 16th International Conference on Intelligent Text Processing and Computational Linguistics 2015 (CICLing ’15) at Cairo, Egypt (April 2015)

• ACM SIGIR Student Travel Support for attending the 35th Annual SIGIR Conference on Research and Development in Information Retrieval (SIGIR ’12) at Portland, USA (August 2012)

• **Best Poster Award** at Evolang IX, Kyoto, Japan, sponsored by the John Benjamins Publishing Co. (March 2012)

• Evolang Student Grant for attending the 9th International Conference on the Evolution of Language (Evolang IX) at Kyoto, Japan (March 2012)

• **Microsoft Research India Ph.D. Fellowship** for three years (August 2011)

• NIXI Fellowship for attending the 20th International World Wide Web Conference (WWW ’11) at Hyderabad, India (March 2011)

### INVITED TALKS

• Invited talks on "New Directions in Conversational Question Answering" at Southwest Jiaotong University, China (16 March 2023), DRDO, India (25 January 2023), and IIT Bombay, India (14 April 2022).

• Invited talks on "Question Answering over Knowledge Graphs" at Stevens Institute of Technology, USA (08 February 2023), and IIT Delhi, India (28 December 2020).

• Invited talk on "Learning from Reformulations in Conversational Question Answering over Knowledge Graphs" at the Knowledge Graph Conference (KGC) 2022, Cornell Tech Campus, New York, USA (06 May 2022).

• Invited talk on "Reinforcement Learning from Reformulations in Conversational Question Answering" at Lowe’s Companies, Inc., Atlanta, USA (30 July 2021).

• Invited talk on "Learning from User Feedback on Explanations to Improve Recommender Models" at Flipkart, Bangalore, India (29 April 2021).

• Invited talk on "Graph Methods for Complex and Conversational Question Answering over Knowledge Bases" at CEDAR (INRIA/LIX), Paris, France (26 November 2020).

• Invited talk at the WSDM 2020 Workshop on Conversational Systems for E-Commerce Recommendations and Search (ConvERSe ‘20) at Houston, USA (07 February 2020).

• Invited talk on "Judicious Graph Exploration in Recommendation and Question Answering Systems" at IIT Kharagpur (02 January 2020).

• Invited talks on "Complexity in Question Answering" at L3S Hannover (21 June 2019), Martin-Luther-Universität Halle-Wittenberg (21 March 2019), Microsoft Research India (10 January 2019), and IIT Kharagpur (24 December 2018).

• Invited talk on "Answer Type Prediction for Question Answering" at Adobe Research, Bangalore, India (16 December 2016).

• Invited talk on "Syntactic Complexity of Web Search Queries through the Lenses of Language Models, Networks and Users" at the 9th Satellite on Dynamics on and of Complex Networks 2016 (DOOCN ’16), Amsterdam, The Netherlands (20 September 2016).
TEACHING

- **Selected Topics in Question Answering** (Seminar Course, 7 ECTS), Computer Science, Saarland University, Germany: Winter 2020
- **Question Answering Systems** (Advanced Lecture, 6 ECTS), Computer Science, Saarland University, Germany: Summer 2020
- **Information Retrieval and Data Mining** (Core Lecture, 9 ECTS), Computer Science, Saarland University, Germany: Winter 2019
  (with Andrew Yates)

GRADUATE STUDENTS

- Philipp Christmann (2021 - Present)
- Magdalena Kaiser (2019 - Present)
- Azin Ghazimatin (2017 - 2021)

SELECTED REVIEWING SUMMARY

Conference PCs

| Senior Area Chair: ACL ('23); Senior PC: AAAI ('21 - '22); PC: WSDM ('21 - '22, '24), WWW ('22), SIGIR ('19 - '21, '23), CIKM ('20 - '21), AAAI ('20), IJCAI ('21), ACL ('20 - '21), EMNLP ('17 - '21), NAACL-HLT ('19 - '21) |

OTHER PROFESSIONAL ACTIVITIES

- **Publications Chair** of the ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS) 2023, 16 - 19 August 2023, Cape Town, South Africa.
- **Publications Chair** of the ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD) 2020, 5 - 7 January 2020, Hyderabad, India.
- **Co-organizer** of the Special Session on Information Retrieval at the 11th International Conference on Knowledge and Systems Engineering (KSE) 2019, 24 - 26 October 2019, Da Nang, Vietnam (with Md. Zia Ullah).
- **Selection committee member** for Masters’ Students for the Computer Science Department at the Saarland University (2019 - 2022).
- **Co-organizer** of the 12th Workshop on Dynamics on and of Complex Networks at NetSci 2019 (DOOCN-XII), 28 May 2019, Vermont, USA (with Fakhteh Ghanbarnejad, Parantapa Bhattacharya, and Sandipan Sikdar).
- **Co-organizer** of the 6th Social Networking Workshop at COMSNETS 2019 (COMSNETS SN ‘19), 11 January 2019, Bangalore, India (with Saptarshi Ghosh).
- **Publications Chair** of the ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD) 2019, 3 - 5 January 2019, Kolkata, India.
Co-organizer of the 11th Workshop on Dynamics on and of Complex Networks at CCS 2018 (DOOCN-XI), 26 September 2018, Thessaloniki, Greece (with Jean-Charles Delvenne, Fakhteh Ghanbarnejad, Fariba Karimi, Bivas Mitra, and Parantapa Bhattacharya).

Co-organizer of the 5th Social Networking Workshop at COMSNETS 2018 (COMSNETS SN ’18), 7 January 2018, Bangalore, India (with Moumita Sinha).

Co-organizer of the 10th Workshop on Dynamics on and of Complex Networks at NetSci 2017 (DOOCN-X), 19 June 2017, Indianapolis, USA (with Jean-Charles Delvenne, Fakhteh Ghanbarnejad, Fariba Karimi, and Bivas Mitra).

EDUCATIONAL BACKGROUND

Ph.D. from Department of Computer Science and Engineering (CSE), IIT Kharagpur [December 2009 – March 2014]

Master of Technology (M. Tech.) in Information Technology from Department of Electronics and Computer Engineering (ECE), IIT Roorkee, with CGPA = 7.98 [July 2007 – July 2009]

Bachelor of Engineering (B. E.) in Information Technology from Department of Information Technology (IT), Jadavpur University, Kolkata, with CGPA = 8.76 [July 2003 – June 2007]

Schooling from Bhavan’s Gangabux Kanoria Vidyamandir (BGKV, also known as “Bharatiya Vidya Bhavan”), Kolkata, with CBSE Class X marks = 89.80% and CBSE Class XII marks = 89.40%) [April 1989 – June 2003]

THESES


INTERNSHIPS AND VISITS

Internships at Microsoft Research India, Bangalore (May 2010 - July 2010, October 2011 - January 2012)

Visits to Microsoft Research India, Bangalore (November - December 2010, March - April 2012, June - July 2013)
EXTRA-CURRICULAR ACHIEVEMENTS

- Taekwondo (2009): Obtained Blue Belt
- Excellence in Character (1999): Obtained the Best Character in School Award

REFERENCES

Prof. Dr. Gerhard Weikum
Research Director and Professor
Databases and Information Systems Group
Max Planck Institute for Informatics
weikum@mpi-inf.mpg.de

Prof. Niloy Ganguly
Professor
Computer Science and Engineering
Indian Institute of Technology Kharagpur
niloy@cse.iitkgp.ernet.in

Dr. Monojit Choudhury
Principal Applied Scientist
Microsoft
monojitc@microsoft.com

Dr. Atanu R. Sinha
Principal Scientist
Adobe Research
atr@adobe.com