

## Medha Atre

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### INTERESTS

Databases, Graph Algorithms, Big Data, Distributed Data Processing.

### EDUCATION

Ph.D. Computer Science, Rensselaer Polytechnic Institute, Troy NY, USA (Jan 2007 - Aug 2011)

M.Tech. Computer Science and Engineering, IIT Bombay, India (Aug 2002 - June 2004)

B.E. Production Engineering, College of Engineering, Pune, India (July 1996 - June 2000) (**Ranked 6<sup>th</sup> in the third year and 2<sup>nd</sup> in the second year in Pune University.**)

### EMPLOYMENT

**Assistant Professor** (March 2016 – present)

Computer Science and Engineering, Indian Institute of Technology Kanpur, India

**Postdoctoral Researcher** (Oct 2011 – Jun 2014)

Computer and Information Science, University of Pennsylvania, Philadelphia, PA, USA

**Research Intern** (Sep 2010 – Nov 2010)

IBM T. J. Watson Labs, Hawthorne, NY, USA

**Research Intern** (May 2008 – Aug 2008)

Oracle Inc, Nashua NH, USA

**Senior Member of Technical Staff** (Jul 2004 - Dec 2006)

Great Software Laboratory, Pune, India

**Member of Technical Staff** (Sep 2000 - July 2002)

Persistent Systems, Pune, India

### PROFESSIONAL SERVICE

#### Chair

Posters and Demo track, International Semantic Web Conference (ISWC), 2018.

Workshop track, International World Wide Web (WWW) conference 2016.

Proceedings/Publication, International Conference on Management of Data (COMAD) 2017.

#### Program Committee Member

Research Track, International Semantic Web Conference (ISWC), 2018.

Research Track, International conf on the World Wide Web (WWW) 2018.

Research Track, International Conference on Management of Data (COMAD) 2018.

Research Track, International Semantic Web Conference (ISWC), 2017.

Research Track, International Conference on Information and Knowledge Management (CIKM), 2016.

Demo track, IEEE International Conference on Data Engineering (ICDE), 2016.

Research Track, International Semantic Web Conference (ISWC), 2016.

Demo track, ACM SIG on the Management of Data (SIGMOD), 2015.

Research Track, International Semantic Web Conference (ISWC), 2015.

Research Track, International Semantic Web Conference (ISWC), 2014.

Research Track, International Semantic Web Conference (ISWC), 2013.

Research Track, International Semantic Web Conference (ISWC), 2009.

### Invited Reviewer

IEEE Transactions on Knowledge and Data Engineering (TKDE), 2017.  
IEEE Transactions on Knowledge and Data Engineering (TKDE), 2013.  
ACM Transactions on the Web (TWeb), 2013.  
IEEE Transactions on Knowledge and Data Engineering (TKDE), 2012.  
IEEE Transactions on Knowledge and Data Engineering (TKDE), 2011.  
The Journal of Information Processing and Management (IPM), 2011.

### External Reviewer

ACM SIG on Knowledge Discovery and Data mining (SIGKDD), 2009.  
ACM Transactions on Database Systems (TODS), 2009.  
International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2009.

### Lab-incharge (Feb 2017 – present)

Computer Science and Engineering, Indian Institute of Technology Kanpur.

### Member, Dept Graduate Admissions Committee (Apr 2016 – present)

Computer Science and Engineering, Indian Institute of Technology Kanpur.

### Member, Cyber Security Audit Committee (Aug 2016 – present)

Indian Institute of Technology Kanpur.

## PROJECTS

- **Real-time Coordinated Video Surveillance** (PI)  
Funding Source: *under submission*.
- **Large-scale Cross-Modal Media Retrieval** (PI)  
Funding Source: Tower Research, INR 600,000 (April 2017 – present).
- **BitMat – RDF data storage and query processing** (PI)  
Funding source: IITK Initiation Grant, INR 2,500,000 (Sep 2016 – present), previously part of PhD work.

(Link to the descriptions)

## INVITED TALKS

- Student Research Council panel discussion on “Am I on the right track? Job, research, entrepreneurship”, IIT Kanpur, March 2018.
- ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD), Goa, India, Jan 2018.
- Computer Science and Engineering dept, IIT Guwahati, India, Sep 2017.
- Workshop on Big Data, Technical Education and Quality Improvement Program, IIT Kanpur, Aug 2017.
- Indian Symposium on Computer Systems Research (Indosys), IIT Bombay, May 2017.
- Adobe Research Lab, Bangalore, India, Mar 2017.
- Indo-Norwegian Information and Communication Technology workshop, IIIT Hyderabad, Jul 2016.
- International Conference on Management of Data (COMAD) (premier papers session), Pune, India, Mar 2016.

## TEACHING

- Spring 2018 – CS315A, Principles of Database Management Systems, Instructor, Indian Institute of Technology Kanpur.
- Fall 2017 – CS698F, Advanced Data Management, Instructor, Indian Institute of Technology Kanpur.

- Spring 2017 – CS315A, Principles of Database Management Systems, Instructor, Indian Institute of Technology Kanpur.
- Fall 2016 – CS698F, Advanced Data Management, Instructor, Indian Institute of Technology Kanpur.
- Fall 2012 – CIS440/550, Database and Information Systems, Assistant and guest lecturer (query processing, optimization, RDF/SPARQL topics), University of Pennsylvania.

## STUDENTS

- Amrit Singhal, undergraduate project, IITK, (Jan 2018 – April 2018)
- Ankit Bhardwaj, undergraduate project, IITK, (Jan 2018 – April 2018)
- Abhishek Kumar, undergraduate project, IITK, (Jan 2018 – April 2018)
- Manish Kumar Bera, undergraduate project, IITK, (Jan 2018 – April 2018)
- Abhishek Panda, undergraduate project, IITK, (Jan 2018 – April 2018)
- Jaismin Kaur, undergraduate project, IITK, (Jan 2018 – April 2018)
- Nikita Awasthi, undergraduate project, IITK, (Jan 2018 – April 2018)
- Dhawal Upadhyay, undergraduate project, IITK, (May 2016 – Dec 2017)
- Gurkirat Singh, undergraduate project, IITK, (May 2016 – Dec 2017)
- Siddharth Mittal, undergraduate project, IITK, (Aug 2017 – Dec 2017)
- Praveen Dhinwa, project engineer, IITK, (Sep 2017 – Dec 2017)
- Gyanesh Gupta, undergraduate project, IITK, (Jan 2017 – Apr 2017)
- Sanjana Garg, undergraduate project, IITK, (Jan 2017 – Apr 2017)
- Minh-Thi Phan, visiting, Texas A&M, USA, (May 2016 – July 2016)
- Jyoti Leeka, external PhD thesis, IIIT Delhi, (Sep 2014 – Mar 2016)

## PUBLICATIONS

Google scholar profile

- Medha Atre: *BitMat-mcore: SPARQL Query Processing with Multi-core BitMat*, draft preparation.
- Medha Atre: *Algorithms and Analysis for the SPARQL Constructs*, under submission.
- Gurkirat Singh\*, Dhawal Upadhyay\*, Medha Atre: *Efficient RDF Dictionaries with B+ Trees*, ACM India Joint International Conference on Data Science & Management of Data (CoDS-COMAD), 2018, Goa, India.
- Jyoti Leeka, Srikanta Bedathur, Debajyoti Bera, Medha Atre: *Quark-X: An Efficient Top-K Processing Framework for RDF Quad Stores*, Intl. Conference on Information and Knowledge Management (CIKM) 2016, Indianapolis, IN, USA.
- Medha Atre: *For the DISTINCT Clause of SPARQL Queries*, Intl. Conf. on the World Wide Web (WWW) Poster Track 2016, Montreal, Canada.
- Medha Atre: *Left Bit Right: For SPARQL Join Queries with OPTIONAL Patterns (Left-outer-joins)*, in ACM SIGMOD 2015, Melbourne, Australia.
- Medha Atre, Vineet Chaoji, Mohammed J. Zaki: *BitPath – Label Order Constrained Reachability Queries over Large Graphs*, Technical Report, March 13 2012, arXiv:1203.2886.
- Medha Atre, Vineet Chaoji, Mohammed J. Zaki, James A. Hendler: *Matrix “Bit”loaded: A Scalable Lightweight Join Query Processor for RDF data*, Intl. Conf. on the World Wide Web (WWW) 2010, Raleigh NC, USA.

- Gregory Todd Williams, Jesse Weaver, Medha Atre, James A. Hendler: *Scalable Reduction of Large Datasets to Interesting Subsets*, Journal of Web Semantics, Special Issue: Science, Services, and Agents on the world wide web 2010 (invited paper as an extension of the champion submission in Billion Triple Challenge at the International Semantic Web Conf. (ISWC) 2009, Washington DC, USA).
- Medha Atre, James A. Hendler: *BitMat: A Main Memory Bit-matrix of RDF Triples*, SSWS workshop at the International Semantic Web Conf. (ISWC) 2009, Washington DC, USA.
- Seema Sundara, Medha Atre, Vladimir Kolovski, Souripriya Das, Zhe Wu, Eugene Chong, Jagannathan Srinivasan: *Visualizing Large-Scale RDF Data Using Subsets, Summaries, and Sampling in Oracle*, IEEE International Conference on Data Engineering (ICDE) 2010, Long Beach CA, USA.
- Medha Atre, Jagannathan Srinivasan, James A. Hendler: *BitMat: A Main-memory Bit Matrix of RDF Triples for Conjunctive Triple Pattern Queries*, International Semantic Web Conference (ISWC), Posters and Demo track 2008, Karlsruhe, Germany (1st runner-up award).

(\* Equal contribution)

## PATENT

- Medha Atre, Jagannathan Srinivasan, Seema Sundara: Data visualization with summary graphs (US-8126926-B2).

## REFERENCES

*Available upon request.*