

Julia Stoyanovich, PhD

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Current Affiliations

Since 09/2013 Assistant Professor of Computer Science
College of Computing and Informatics
Drexel University, Philadelphia, PA USA

Since 04/2016 Affiliated Faculty
Center for Information Technology Policy
Princeton University, Princeton, NJ USA

Past Academic Appointments

09/2012 – 08/2013 Assistant Professor
College of Information Science and Technology (The iSchool)
Drexel University, Philadelphia, PA USA

09/2012 – 05/2013 Assistant Professor (part-time)
Skolkovo Institute of Science and Technology (Skoltech)
Moscow, Russia

11/2011 – 08/2012 Visiting Scholar
11/2009 – 10/2011 Postdoctoral Researcher, Computing Innovations Fellow
Department of Computer and Information Science
University of Pennsylvania, Philadelphia, PA USA
Supervised by Prof. Susan Davidson

09/2003 – 10/2009 Graduate Research Assistant / PhD Student
Department of Computer Science
Columbia University, New York NY USA
Supervised by Prof. Kenneth A. Ross

Summer 2008 Research Intern, Community Systems Group
Summer 2007 Research Intern, Social Systems Group
Yahoo! Research, New York NY USA
Supervised by Dr. Sihem Amer-Yahia

Summer 2006 Research Intern
Databases and Information Systems Group
Max-Planck Institut für Informatik, Saarbruecken, Germany
Supervised by Professor Gerhard Weikum

Summer 2005 Research Intern
Advanced Optimization Group
IBM Almaden Research Center, San Jose, CA, USA
Supervised by Dr. Jun Rao, Dr. Volker Markl, and Dr. Guy Lohman

Education

PhD in Computer Science
Columbia University
09/2004 – 10/2009

- ✓ Thesis “Search and Ranking in Semantically Rich Applications.”
- ✓ Advised by Professor Kenneth A. Ross

MS in Computer Science
Columbia University
09/2003 – 05/2004

- ✓ Fully funded through a research assistantship
- ✓ GPA: 4.0/4.0

BS in Computer Science
BS in Mathematics and Statistics
University of Massachusetts Amherst
09/1995 – 08/1998

- ✓ Graduated magna cum laude, GPA 3.73/4.0
- ✓ Phi Kappa Phi Honor Society
- ✓ Recipient of the 1997 Du Bois Research Scholarship

Publications

1. “Diversity in Big Data: A Review”, M. Drosou, HV Jagadish, E. Pitoura, J. Stoyanovich, *Big Data Special Issue on Social and Technical Trade-Offs*, 06/2017.
2. “Querying Probabilistic Preferences in Databases”, B. Kenig, B. Kimelfeld, H. Ping, J. Stoyanovich, *PODS 2017*.
3. “A Database Framework for Probabilistic Preferences”, B. Kenig, B. Kimelfeld, H. Ping, J. Stoyanovich, *AMW 2017*.
4. “Temporal Graph Algebra”, V. Z. Moffitt and J. Stoyanovich, *DBPL 2017*.
5. “Towards Sequenced Semantics of Evolving Graphs”, V.Z. Moffitt and J. Stoyanovich, *EDBT 2017*.
6. “Fides: A Platform for Responsible Data Science”, B. Howe, J. Stoyanovich, S. Abiteboul, G. Miklau, A. Sahuguet, G. Weikum, *SSDBM 2017*.
7. “DataSynthesizer: Privacy-preserving Synthetic Data Generation”, H. Ping, J. Stoyanovich, B. Howe, *SSDBM 2017*.
8. “Measuring Fairness in Ranked Outputs”, K. Yang and J. Stoyanovich, *SSDBM 2017*.
9. “Synthetic Data for Social Good”, B. Howe, J. Stoyanovich and H. Ping, *Data for Good Exchange (D42GX) 017*.
10. “Zooming in on NYC Taxi Data with Portal”, J. Stoyanovich, M. Gilbride and V. Z. Moffitt, *Data Science for Social Good (DSSG) 2017*.
11. “Data, Responsibly: Fairness, Neutrality and Transparency in Data Analysis” (tutorial), J. Stoyanovich, S. Abiteboul, G. Miklau, *EDBT 2016*.
12. “Workload-driven Learning of Mallows Mixtures with Pairwise Preference Data”, J. Stoyanovich, L. Ilijasic, H. Ping, *WebDB 2016*.
13. “Towards a Distributed Infrastructure for Evolving Graph Analytics”, V. Z. Moffitt and J. Stoyanovich, *TempWeb 2016*.
14. “Collaborative Access Control in WebdamLog”, V. Z. Moffitt, J. Stoyanovich, S. Abiteboul, G. Miklau, *SIGMOD 2015*.
15. “Analyzing Crowd Rankings”, J. Stoyanovich, M. Jacob, X. Gong, *WebDB 2015*.
16. “A System for Management and Analysis of Preference Data”, M. Jacob, B. Kimelfeld, J. Stoyanovich, *PVLDB 7(12)*, 2014.
17. “Rule-based Application Development using Webdamlog” (demonstration), S. Abiteboul, E. Antoine, G. Mikalu, J. Stoyanovich, J. Testard, *SIGMOD 2013*.

18. "Understanding Local Structure in Ranked Datasets", J. Stoyanovich, S. Amer-Yahia, S.B. Davidson, M. Jacob, T. Milo, *CIDR 2013*.
19. "Search and Result Presentation in Scientific Workflow Repositories", S.B. Davidson, X. Huang, J. Stoyanovich, X. Yuan, *SSDBM 2013*.
20. "Learning to Explore Scientific Workflow Repositories", J. Stoyanovich, P. Dhillon, B. Lyons, S.B. Davidson, *SSDBM 2013*.
21. "Learning Feature Weights from Positive Cases", S. Gunawardena, R. O. Weber, J. Stoyanovich, *ICCBR 2013*.
22. "Introducing Access Control in Webdamlog" (invited submission), S. Abiteboul, E. Antoine, G. Miklau, J. Stoyanovich, V. Zaychik Moffitt, *DBPL 2013*.
23. "Viewing the Web as a Distributed Knowledge Base", S. Abiteboul, E. Antoine, J. Stoyanovich, *ICDE 2012* (invited submission).
24. "Putting Lipstick on Pig: Enabling Database-style Workflow Provenance", Y. Amsterdamer, S.B. Davidson, D. Deutch, T. Milo, J. Stoyanovich, V. Tannen, *PVLDB 5(4), 2011*.
25. "Deriving Probabilistic Databases with Inference Ensembles", J. Stoyanovich, S.B. Davidson, T. Milo, V. Tannen, *ICDE 2011*.
26. "Making Interval-based Clustering Rank-aware", J. Stoyanovich, S. Amer-Yahia, T. Milo, *EDBT 2011*.
27. "Keyword Search in Workflow Repositories with Access Control", S.B. Davidson, S.M. Lee, J. Stoyanovich, *AMW 2011*.
28. "On Provenance and Privacy" (invited submission), S.B. Davidson, S. Khanna, S. Roy, J. Stoyanovich, V. Tannen, Y. Chen, *ICDT 2011*.
29. "Enabling Privacy in Provenance-aware Workflow Systems", S.B. Davidson, S. Khanna, S. Roy, J. Stoyanovich, V. Tannen, Y. Chen, T. Milo, *CIDR 2011*.
30. "AnnotCompute: Annotation-Based Exploration and Meta-analysis of Biological Experiments", J. Zheng, J. Stoyanovich, J. Liu, E. Manduchi, C.J. Stoeckert, Jr., *The Journal of Biological Databases and Curation, 2011*.
31. "SkylineSearch: Semantic Ranking and Result Visualization for PubMed" (demonstration), J. Stoyanovich, M. Lodha, W. Mee, K.A. Ross, *SIGMOD 2011*.
32. "Semantic Ranking and Result Visualization for Life Sciences Publications", J. Stoyanovich, W. Mee, and K.A. Ross, *ICDE 2010*.
33. "Exploring Repositories of Scientific Workflows", J. Stoyanovich, B. Taskar, S. Davidson, *WANDS 2010*.
34. "Rank-Aware Clustering for Structured Datasets", J. Stoyanovich, S. Amer-Yahia, *CIKM 2009*.
35. "Efficient Network-Aware Search in Collaborative Tagging Sites", S. Amer-Yahia, M. Benedikt, L. Lakshmanan, J. Stoyanovich, *PVLDB (1), 2008*.
36. "Schema Polynomials and Applications", K.A. Ross, J. Stoyanovich, *EDBT 2008*.
37. "From del.icio.us to x.qui.site: Recommendations in Social Tagging Sites" (demonstration), S. Amer-Yahia, A. Galland, J. Stoyanovich, C. Yu, *SIGMOD 2008*.
38. "Leveraging Tagging to Model User Interests in del.icio.us", J. Stoyanovich, S. Amer-Yahia, C. Marlow, C. Yu. *AAAI Spring Symposium on Social Information Processing (AAAI-SIP) 2008*.
39. "EntityAuthority: Semantically-Enriched Graph Based Authority Propagation", J. Stoyanovich, S. Bedathur, K. Berberich, G. Weikum, *WebDB 2007*.
40. "MutaGeneSys: Making Diagnostic Predictions Based on Genome-Wide Association Data in Genotype Studies", J. Stoyanovich, I. Pe'er, *Bioinformatics, 12/2007*.
41. "A Faceted Query Engine Applied to Archaeology", K.A. Ross, A. Janevski, J. Stoyanovich, *Internet Archaeology, 04/2007*.

42. "A Faceted Query Engine Applied to Archaeology" (demonstration), K.A. Ross, A. Janevski, J. Stoyanovich, *VLDB 2005*.
43. "Symmetric Relations and Cardinality Bounded Multisets in Database Systems", K.A. Ross and J. Stoyanovich, *VLDB 2004*.

Editorials and Popular Press

1. "Revealing algorithmic rankers", J. Stoyanovich and E.P. Goodman, Freedom to Tinker, August 5, 2016, <http://freedom-to-tinker.com/2016/08/05/revealing-algorithmic-rankers/>
2. "Plaidoyer pour une analyse *responsable* des données" (op-ed, in French), S. Abiteboul, J. Stoyanovich, Le Monde, October 12, 2015.
3. "Data, Responsibly" (editorial), S. Abiteboul, J. Stoyanovich, ACM SIGMOD blog, <http://wp.sigmod.org/?p=1900>
4. "The Elephant in the Room: Getting Value from Big Data" (editorial), S. Abiteboul, X. L. Dong, O. Etzioni, D. Srivastava, G. Weikum, J. Stoyanovich, F.M. Suchanek, *WebDB 2015*.

Patents

1. "Automatically and Adaptively Determining Execution Plans for Queries with Parameter Markers", W. Fan, G. Lohman, V. Markl, N. Megiddo, J. Rao, D. Simmen, J. Stoyanovich. US Patent 7,958,113. Assignee: IBM.
2. "Social Behavior Analysis and Inferring Social Networks for a Recommendation System", S. Amer-Yahia, E. Gabrilovich, B. Pang, J. Stoyanovich, C. Yu. US Patent 8,073,794 (Dec 6, 2011). Assignee: Yahoo! Inc.

Funding

1. NSF Grant No.1741047: BIGDATA: F: Collaborative Research: Foundations of Responsible Data management. Award Period: 09/01/2017-08/31/2021. Julia Stoyanovich: Lead PI; Bill Howe (University of Washington), HV Jagadish (University of Michigan), Gerome Miklau (University of Massachusetts Amherst): Co-PIs. Award amount: \$1,600,000 total / \$484,888 PI.
2. NSF Grant No.1464327: CRIL: Managing preference data. Award Period: 05/01/2015-04/30/2018. Julia Stoyanovich: PI. Award amount \$190,888.
3. BSF Grant No. 2014391: Aggregation methods for partial preferences. Award Period: 09/01/2015-08/31/2017. Julia Stoyanovich: US PI; Benny Kimelfeld: Israeli PI. Award amount \$75,000.
4. NSF Grant No. 1539856: USICCS (BSF supplement): Aggregation methods for partial preferences. Award Period: 09/01/2015-08/31/2017. Julia Stoyanovich: PI. Award amount \$50,000.
5. Drexel Office of the Provost and the Steinbright Career Development Center. Research co-op award. Award Period: 04/07/2014-08/31/2014. Julia Stoyanovich: PI. Award amount \$7,215.
6. NSF Grant No. 0937060: CRA Computing Innovations Fellowship: Data exploration in biological repositories. Award Period: 11/01/2009-10/31/2011. Julia Stoyanovich: CIFellow, Susan B. Davidson: mentor. Award amount \$267,500.
7. Google Research Award: Identifying ranked agreement among raters. Award Period: 12/01/2011-12/31/2012. Julia Stoyanovich: PI. Award amount \$10,000.

Teaching Experience

- ✓ Computer Science
Drexel University
- Instructor, Summer 2014, Summer 2015, Summer 2016,
Winter 2017
Fundamentals of Databases (CS 500)

- ✓ Computer Science
Drexel University
Instructor, Spring 2015, Spring 2016, Spring 2017
Database Systems (CS 461)

- ✓ The iSchool
Drexel University
Instructor, Fall 2012, Winter 2013
Database Systems (INFO 210)

- ✓ Computer and Information Science
University of Pennsylvania
Instructor, Spring 2012
Data structures and algorithms with Java (CIS 121)
Instructor, Fall 2010
Advanced topics in databases: information discovery in massive datasets (CIS 650), co-taught with Susan Davidson

- ✓ Computer Science
Columbia University
Instructor, Summer 2009
Object-oriented programming and design in Java (COMS 1007)
Teaching Assistant, Spring 2006 and Spring 2007
Advanced database systems (COMS 6111)

- ✓ Joint EDBT / RussIR Summer School
Saint Petersburg, Russia
Instructor, Summer 2011
Top-K processing for search and information discovery in social applications, co-taught with Sihem Amer-Yahia

- ✓ Encoda Systems, New York, NY
Instructor, Spring 2003
Technical seminars on foundations of relational database systems

- ✓ Science Enrichment Program
University of Massachusetts Amherst
Teaching Assistant, Summer 1996
Introduction to programming, a course for high-school students

Industry Experience

- 08/2001 – 08/2003 Database Developer and Administrator
Encoda Systems, New York NY USA

- 08/2000 – 07/2001 Web and Database Developer
MediaPartnerships, New York, NY USA

- 09/1998 – 08/2000 Database Developer
Juno Online Services, New York NY USA

- 09/1997 – 01/1998 Programmer-Intern
Hewlett-Packard, Medical Equipment R&D, Böblingen, Germany

Professional Activities

- ✓ Steering committee member: FAT*, Conference on Fairness, Accountability and Transparency (since 09/2017)
- ✓ Member of the ACM task force to revise the Code of Ethics and Professional Conduct
- ✓ Dagstuhl seminar co-organizer: Data, Responsibly, July 2016.
- ✓ Workshop co-chair: WebDB 2015
- ✓ New Researcher Symposium co-chair: ACM SIGMOD 2015, 2016
- ✓ Workshop selection co-chair, ACM SIGMOD 2017
- ✓ Workshop selection co-chair, EDBT/ICDT 2017
- ✓ Panels selection co-chair, IEEE ICDE 2017

- ✓ Area Editor: Information Systems (since 01/2016)
- ✓ Review board member: PVLDB (2016-17, 2014-15, 2012-13)
- ✓ Senior program committee member: IJCAI 2016 (AI and Web track)
- ✓ Program committee member (conferences): ACM SIGMOD (2017, 2016, 2015, 2013), ACM SIGIR (2014, 2013), ACM WSDM (2015), IEEE ICDE (2013, 2011), EDBT (2016, 2013, 2011), WWW (2013, 2012), SSDBM (2014, 2012), IEEE CIKM 2010, VLDB 2009, D4GX 2017
- ✓ Program committee member (workshops): ExploreDB (2016), HotCloud (2016), AMW 2012, WebDB (2012, 2011), DBSocial 2012, SMANE 2012, SIASP 2010
- ✓ Reviewer: IEEE TKDE (2013, 2012, 2011), CACM 2012, ACM TODS (2012, 2011, 2008), ACM TWeb (2012), ACM TOSEM 2010, Bioinformatics 2011, Information Systems (2013, 2012), SNAM (2014, 2011)
- ✓ External reviewer: SIGMOD 2008, VLDB 2008, VLDB 2006
- ✓ Proceedings chair: EDBT/ICDT 2011
- ✓ Web chair: PersDB 2009
- ✓ Local arrangements chair: Spring 2008 North East DB/IR Day

Invited Talks

- ✓ EDBT Summer School “Adding Value to Data” (invited tutorial), 08/2017
- ✓ AMW Data Science School (invited tutorial), 06/2017
- ✓ Center for Information Technology Policy (CITP), Princeton University, 2/28/2017
- ✓ Oxford, Information Systems Seminar, 1/19/2016
- ✓ Kings College London, Informatics Seminar, 1/18/2016
- ✓ University of Helsinki, CS colloquium, 9/11/2014
- ✓ Aalto University, ICS forum, 9/10/2014
- ✓ University of Chicago, CS colloquium, 3/15/2013
- ✓ Drexel University, BIOMED seminar, 2/1/2013
- ✓ SkTech / MIT seminar, 5/17/2012
- ✓ Portland State University, CS colloquium, 4/16/2012
- ✓ Florida International University, CIS colloquium, 4/6/2012
- ✓ VirginiaTech, CS colloquium, 3/20/2012
- ✓ Max Planck Institute for Software Systems, SWS colloquium, 3/15/2012
- ✓ University of Waterloo, CS colloquium, 2/15/2012
- ✓ Stevens Institute of Technology, CS colloquium, 1/23/2012
- ✓ Max Planck Institute for Informatics, Databases and Information Systems colloquium, 12/13/2011
- ✓ INRIA/Telecom ParisTech, DBWeb-Webdam seminar, 12/5/2011
- ✓ Drexel University, iSchool colloquium, 11/30/2011
- ✓ University of Pittsburgh, CS colloquium, 11/28/2011
- ✓ Harvard University, Systems Research at Harvard (SYRAH) colloquium, 10/28/2011
- ✓ MIT, Computer Science and Artificial Intelligence Laboratory (CSAIL) colloquium, 10/27/2011
- ✓ Boston University, Hariri seminar, 10/26/2011
- ✓ Yandex, Moscow, Russia, Research colloquium, 8/23/2011
- ✓ Northeastern University, CCS colloquium, 3/18/2011
- ✓ Illinois Institute of Technology, CS colloquium, 2/28/2011
- ✓ IBM Watson, Research Colloquium, 2/11/2011
- ✓ Yahoo! Research Barcelona, 12/16/2010
- ✓ Polytechnic Institute of NYU, CSE colloquium, 04/06/2010
- ✓ University of Southern California, CS colloquium, 03/01/2010
- ✓ University of Pennsylvania, Computational Biology and Informatics (CBIL) colloquium, 01/21/2010
- ✓ University of Pennsylvania, Database Group colloquium, 04/22/2009

- ✓ Technical University of Berlin, Database and Information Management (DIMA) colloquium, 01/19/2009

Advising and Mentoring

- ✓ PhD students: Vera Moffitt (Drexel, graduated 05/2017); Haoyue Ping (Drexel), Ke Yang (Drexel), Amir Pouya Aghasadeghi (Drexel), Xiaocheng Huang (UPenn, visiting student, co-advised with Prof. Susan Davidson)
- ✓ MS students: Anastasia Uryasheva (Skoltech), Matthew Bucci (Drexel), Akhil Kapoor (Drexel), Sanjana Raj (Drexel), Matthew Gilbride (Drexel), Jugal Lodya (Drexel), Priyasmita Bagchi (Drexel)
- ✓ BS students: Halima Olapade (Drexel), Simona D'Avanzo (Drexel), Shishir Kharel (Drexel), Charles Gilliam (Drexel)
- ✓ ReThink @ Drexel mentor (summer 2014), research experience for high school Computer Science teachers
- ✓ Faculty mentor, Drexel University Women in Computing Society (WiCS), 2015-16

Honors and Awards

- ✓ CRA Computing Innovations Fellow, 2009-2010 and 2010-2011
- ✓ Recipient of 2008 Michelman award for service to the Computer Science Department, Columbia University
- ✓ Recipient of 1997 DuBois Undergraduate Research Scholarship, University of Massachusetts, Amherst

Leadership

- ✓ Senator, Columbia University Senate, member of the Senate Education Committee, 09/2006-05/2007
- ✓ Dean Search Committee, Columbia University, School of Engineering and Applied Science, Spring 2008
- ✓ Steering Committee Member, Columbia University Graduate Student Advisory Council, 09/2004 – 05/2009

Languages fluent in English, German, Russian, and Serbian; intermediate Italian.