Satyaki Sikdar

211 Doyle Center – 1052 W Loyola Ave – Chicago, IL 60626

□ 574-339-2898 • ✉ ssikdar@luc.edu • 🌐 satyaki.net

🆔 0000-0003-1669-6594 • ✉ 2f6t6hYAAAAJ • 🐙 satyakisikdar

Research Interests

Network science · science of science · social and information networks · machine learning

Education

University of Notre Dame   **Notre Dame, IN**
Ph.D. in Computer Science & Engineering   *2017 – 2022*

  Adviser: Tim Weninger

  Thesis: Scalable and Interpretable Graph Modeling with Graph Grammars

  Committee: David Chiang, Peter Kogge, and Danai Koutra

Heritage Institute of Technology   **Kolkata, India**
B.Tech. in Computer Science & Engineering   *2013 – 2017*

  Advisers: Partha Basuchowdhuri and Subhashis Majumder

  Thesis: Learning Models for Influence Maximization

Experience

Loyola University Chicago   **Chicago, IL**
Assistant Professor (tenure-track), Computer Science Department   *Aug 2024 –*

Indiana University   **Bloomington, IN**
Postdoctoral Fellow with Santo Fortunato, Luddy School of Informatics *Jan 2022 – Jul 2024*

University of Notre Dame   **Notre Dame, IN**
Instructor of Record   *Fall 2021, Spring 2021*
Graduate Research Assistant with Tim Weninger   *May 2018 – Dec 2021*
Graduate Teaching Assistant   *Aug 2017 – May 2018*

Snap Inc.   **Remote**
Research Intern, Computational Social Science Team   *May – Aug 2020*

Heritage Institute of Technology   **Kolkata, India**
Undergraduate Researcher with Partha Basuchowdhuri and Subhashis Majumder   *Apr 2015 – Jul 2017*

Honors and Awards

Teaching Award: Outstanding Graduate Student Instructor Award 2022
Student Award: Best Student Award for Academic Excellence – Class of 2017
Travel Awards: ACM WSDM 2022 · ACM IKDD Conference on Data Science 2016

Courses Taught

Loyola University Chicago   **Chicago, IL**

Instructor of Record for COMP 306/406 Data Mining   *Fall 2024*

  Class size: 27 (online)

Instructor of Record for COMP 141 Introduction to Computing Tools and Techniques   *Fall 2024*

  Class size: 28 (online)

Network Science Society

Co-instructor for A Short First Course in Network Science   *Summer 2024*

  A two-week online course co-taught with Santo Fortunato

University of Notre Dame   **Notre Dame, IN**

Instructor of Record for CSE 30151 Theory of Computing   *Fall 2021*

  Class size: 91. Composite median score: 4.7 / 5.

Instructor of Record for CSE 20110 Discrete Mathematics   *Spring 2021*

  Class size: 50. Composite median score: 3.7 / 5.

Publications   ($*$ equal contribution   AR acceptance rate   IF impact factor)

Journal Articles

[J4] **S. Sikdar**$*$, S. Venturini$*$, M. L. Charpignon, S. Kumar, F. Rinaldi, F. Tudisco, S. Fortunato, and M. S. Majumder, *"What we should learn from pandemic publishing,"* *Nature Human Behaviour (comment)*, 2024.

[J3] **S. Sikdar**$*$, S. Venturini$*$, F. Rinaldi, F. Tudisco, and S. Fortunato, *"Collaboration and topic switches in science,"* *Scientific Reports*, 2024, [IF:4.6].

[J2] **S. Sikdar**, D. G. Cedre, T. W. Ford, and T. Weninger, *"The Infinity Mirror Test for Graph Models,"* *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2022, [IF:8.9].

[J1] P. Basuchowdhuri, **S. Sikdar**, V. Nagarajan, K. Mishra, S. Gupta, and S. Majumder, *"Fast Detection of Community Structures using Graph Traversal in Social Networks,"* *Knowledge and Information Systems (KAIS)*, 2018, [IF:2.7].

Conference Papers

[C6] **S. Sikdar**, N. Shah, and T. Weninger, *"Attributed Graph Modeling with Vertex Replacement Grammars,"* *ACM International Conference on Web Search and Data Mining (WSDM)*, 2022, [AR:18%].

[C5] J. I. Hibshman, D. G. Cedre, **S. Sikdar**, and T. Weninger, *"Joint Subgraph-to-Subgraph Transitions: Generalizing Triadic Closure for Powerful and Interpretable Graph Modeling,"* *ACM International Conference on Web Search and Data Mining (WSDM)*, 2021, [AR:18%].

[C4] J. I. Hibshman, **S. Sikdar**, and T. Weninger, *"Towards Interpretable Graph Modeling with Vertex Replacement Grammars,"* *IEEE International Conference on Big Data (BigData)*, 2019, [AR:19%].

[C3] **S. Sikdar**, J. Hibshman, and T. Weninger, *"Modeling Graphs with Vertex Replacement Grammars,"* *IEEE International Conference on Data Mining (ICDM)*, 2019, [AR:9%].

[C2] C. Pennycuff, **S. Sikdar**, C. Vajiac, D. Chiang, and T. Weninger, *"Synchronous Hyperedge Replacement Graph Grammars,"* *International Conference on Graph Transformation (ICGT)*, 2018.

[C1] P. Basuchowdhuri, **S. Sikdar**, S. Shreshtha, and S. Majumder, *"Detecting Community Structures in Social Networks by Graph Sparsification,"* *ACM IKDD Conference on Data Science (CODS)*, 2016, [AR:5%].

Peer-reviewed Abstracts

[A7] S. Venturini, **S. Sikdar**, M. Mazzarello, F. Rinaldi, F. Tudisco, P. Santo, S. Fortunato, and C. Ratti, *"The Effect of Colocation on Paper Coauthorships during COVID-19,"* International Conference on Network Science (NetSci), Contributed Talk, 2024.

[A6] S. Venturini, **S. Sikdar**, M. Mazzarello, F. Rinaldi, F. Tudisco, P. Santo, S. Fortunato, and C. Ratti, *"The Effect of Colocation on Paper Coauthorships during COVID-19,"* International Conference on Science of Science and Innvoation (ICSSI), Poster, 2024.

[A5] **S. Sikdar***, S. Venturini*, M. L. Charpignon, S. Kumar, F. Rinaldi, F. Tudisco, S. Fortunato, and M. S. Majumder, *"The COVID-19 Research Outbreak: How the Pandemic Culminated in a Surge of New Researchers,"* International Conference on Computational Social Science (IC^{2}S^2), Contributed Talk, 2023, [AR:31%].

[A4] **S. Sikdar***, S. Venturini*, M. L. Charpignon, S. Kumar, F. Rinaldi, F. Tudisco, S. Fortunato, and M. S. Majumder, *"The COVID-19 Research Outbreak: How the Pandemic Culminated in a Surge of New Researchers,"* International Conference on Science of Science and Innvoation (ICSSI), Contributed Talk, 2023.

[A3] **S. Sikdar***, S. Venturini*, F. Rinaldi, F. Tudisco, and S. Fortunato, *"Collaboration and Topic Switches in Science,"* International Conference on Computational Social Science (IC^{2}S^2), Plenary Talk, 2023, [AR:1.75%].

[A2] **S. Sikdar***, S. Venturini*, F. Rinaldi, F. Tudisco, and S. Fortunato, *"Collaboration and Topic Switches in Science,"* International Conference on Science of Science and Innvoation (ICSSI), Contributed Talk, 2023.

[A1] **S. Sikdar***, S. Venturini*, F. Rinaldi, F. Tudisco, and S. Fortunato, *"Collaboration and Topic Switches in Science,"* International Conference on Network Science (NetSci), Contributed Talk, 2023.

Contributed Chapters

[R2] **S. Sikdar**, *"NetworkX Graph Library,"* *A Survey of Graph Processing Paradigms*, P. M. Kogge, Ed., University of Notre Dame, 2019. DOI: `10.7274/r0-z6dc-9c71`.

[R1] **S. Sikdar**, *"Spectral Community Detection,"* *A Survey of Graph Kernels*, P. M. Kogge, Ed., University of Notre Dame, 2019. DOI: `10.7274/r0-e7wb-da60`.

Under Preparation

[P1] **S. Sikdar***, A. Ghavasieh*, M. De Domenico, and S. Fortunato, *"Persistent Energy Localization Determines the Mesoscale Functional Organization of Complex Networks,"* Forthcoming, 2024.

Presentations
(* virtual talk)

Invited Talks

Loyola University Chicago, Chicago, IL	Mar 2024
University of Minnesota, Duluth, MN	Feb 2024
University of Dayton, Dayton, OH	Feb 2024
DePaul University, Chicago, IL	Feb 2024
Heritage Institute of Technology, Kolkata, India	Sep 2022
Indian Association for the Cultivation of Science, Kolkata, India	Sep 2022
University of Louisville, Louisville, KY	Mar 2022
Lawrence Livermore National Laboratory, Livermore, CA*	Apr 2021
University of Illinois, Urbana, IL*	Apr 2021
Missouri State University, Springfield, MO*	Feb 2021
South Dakota State University, Brookings, SD*	Dec 2020

Indian Association for the Cultivation of Science, Kolkata, India	Oct 2019
Vidyasagar College, Kolkata, India	Jan 2016

Posters

The Effect of Colocation on Paper Coauthorships during COVID-19. ICSSI 2024	July 2024
Consistency Pays off in Science. ICSSI 2023	June 2023
The Infinity Mirror Test for Graph Generators. SIAM NS 2020 📄	July 2020
Modeling Graphs with Vertex Replacement Grammars. SIAM NS 2019, NetSci 2019 📄	May 2019
Synchronous Hyperedge Replacement Graph Grammars. MSLD 2018 📄	May 2018

Other Talks

Introduction to Support Vector Machines 📄	Apr 2017
Density Based Spatial Clustering of Applications with Noise 📄	Feb 2017
Introduction to Decision Trees 📄	Nov 2016
A Friendly Introduction to Random Networks 📄	Feb 2016

Service

International Committee Leader. Postdoc Association Indiana University Bloomington	2022 – 2024

Program Committee Member
- PAKDD 2024
- WSDM 2024
- ISSI 2023
- The Web Conference 2024
- ICWSM 2024,2023,2022,2020
- BigData 2024,2019
- SDM 2024,2023,2022
- CIKM 2024,2023,2022,2021
- WISE 2019

Journal Reviewer
- Quantitave Science Studies
- PLOS ONE
- Scientometrics
- ACM Transactions on Data Science (TDS)
- EPJ Data Science
- Data Mining and Knowledge Discovery (DMKD)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- International Journal Cooperative Information Systems (IJCIS)
- Journal of Combinatorial Optimization
- Physical Review E
- Journal of Logic & Computation
- Physical Review Materials

External Reviewer (multiple times). ICDM, CIKM, The Web Conference, WSDM, KDD, AAAI

Volunteer. The Scoop from Grad Students	Dec 2019
Panelist. Preparing a Grad School Application	Dec 2019
Member. Notre Dame CSE Graduate Student Board	2019 – 2020
Volunteer Judge. Northern Indiana Regional Science & Engineering Fair	2019, 2020
Chair, Vice Chair, Secretary. Heritage Institute of Technology ACM Student Chapter	2014 – 2017

Students Mentored (@ indicates co-authorship in papers)

Marie-Laure Charpignon[@]. Ph.D. student, MIT   Aug 2022 –

Sagar Kumar[@]. Ph.D. student, Northeastern   Aug 2022 –

Arsham Ghavasieh[@]. Ph.D. student, University of Trento, Italy   Aug 2022 –

Şirag Erkol[@]. Ph.D. student, IU   Feb – Aug 2022

Daniel Kaiser. Ph.D. student, IU   Feb – Aug 2022

Sara Venturini[@]. Ph.D. student, University of Padova, Italy   Jan 2022 –

Manita Pote. Ph.D. student, IU   Jan – May 2022

Daniel Gonzalez Cedre[@]. Ph.D. student, ND   Dec 2019 – Aug 2020

Catalina Vajiac[@]. B.S. student, ND (now a Ph.D. student at CMU)   Jan – Jul 2019

Justus Hibshman[@]. Ph.D. student, ND   Sep – Dec 2018

Computer Skills

Advanced: Python, NetworkX, Matplotlib, Seaborn, Jupyter, LaTeX
Intermediate: C++, Boost Graph Library, Pandas, SQL, shell scripting

Relevant Coursework

Scalable Graph Algorithms · Web Science & Information Retrieval · Exotic Computing · Social Networks Complexity & Algorithms · Pedagogy and Practice in the College Classroom

References

Tim Weninger   574–631–6770

Frank M. Freimann Collegiate Associate Professor of Engineering   tweninger@nd.edu
Department of Computer Science & Engineering
University of Notre Dame

Santo Fortunato   812–856–5754

Professor   santo@iu.edu
APS Fellow, Network Science Society Fellow
Luddy School of Informatics, Computing, and Engineering
Indiana University Bloomington

Peter M. Kogge   574–631–6763

Ted H. McCourtney Professor of Computer Science & Engineering   kogge@nd.edu
IBM Fellow, IEEE Fellow, AAAS Fellow
University of Notre Dame

Maimuna S. Majumder   617–355–6000

Assistant Professor   maimuma.majumder@childrens.harvard.edu
Peter Szolovits Distinguished Scholar
Computational Health Informatics Program
Harvard Medical School & Boston Children's Hospital