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RESEARCH INTERESTS	Network science, data mining, and machine learning	
EDUCATION	<b>University of Notre Dame</b> , Notre Dame, IN	
	Ph.D., Computer Science & Engineering	2017 –
	Adviser: Dr. Tim Weninger	
	<b>Heritage Institute of Technology</b> , Kolkata, India	
	B.Tech., Computer Science & Engineering, GPA: 8.8/10	2013 – 2017
	Thesis: <i>Learning Models for Influence Maximization</i>	
	Advisers: Dr. Partha Basuchowdhuri and Dr. Subhashis Majumder	
RESEARCH EXPERIENCE	<b>Graduate Research Assistant</b>	May 2018 –
	Department of Computer Science & Engineering, University of Notre Dame Supervisor: Dr. Tim Weninger	
	<b>Research Assistant</b>	Apr 2015 – Jul 2017
	Department of Computer Science & Engineering, Heritage Institute of Technology, Kolkata Supervisors: Dr. Partha Basuchowdhuri and Dr. Subhashis Majumder	
JOURNAL PUBLICATIONS	J1. Basuchowdhuri, P., <b>Sikdar, S.</b> , Nagarajan, V., Mishra, K., Gupta, K., and Majumder, S. <i>Fast Detection of Community Structures using Graph Traversal in Social Networks</i> , 2017. Knowledge and Information Systems (KAIS). <a href="https://arxiv.org/abs/1707.04459">arXiv:1707.04459</a> .	
CONFERENCE PUBLICATIONS	C2. Pennycuff, C., <b>Sikdar, S.</b> , Vajiac, C., Chiang, D., and Weninger, T., 2018, June. <i>Synchronous Hyperedge Replacement Graph Grammars</i> . International Conference on Graph Transformation (ICGT), 2018.	
	C1. Basuchowdhuri, P., <b>Sikdar, S.</b> , Shreshtha, S., and Majumder, S., 2016, March. <i>Detecting Community Structures in Social Networks by Graph Sparsification</i> . In Proceedings of the 3 <sup>rd</sup> IKDD Conference on Data Science, 2016 (p. 5). ACM.	
PAPERS UNDER PREPERATION	P1. <b>Sikdar, S.</b> , Hibshman J., and Weninger, T. <i>Modeling Graphs with Vertex Replacement Grammars</i> , 2019.	
AWARDS	<b>Travel Awards</b>	
	ACM IKDD Conference on Data Science 2016	Mar 2016
	<b>Student Awards</b> — Heritage Institute of Technology, Kolkata	
	Best Student Award for Academic Excellence	Jul 2017

## PROJECTS

**Modelling graphs with Vertex Replacement Grammars** 2018 –

Created a graph framework and related algorithms that extracts structural features from a given graph and uses that to generate a family of topologically similar graphs. Tools used: Python with the NetworkX library. ([Github repository](#))

**Synchronous Hyperedge Replacement Graph Grammars** 2017 – 2018

Created a graph framework and related algorithms that generalizes language translation for modeling temporal graphs. Tools used: Python with the NetworkX library. ([Github repository](#))

**Learning Models for Influence Maximization** 2016 – 2017

Designed a recommender system for recommending restaurants to users based on the topology of the underlying bipartite network of users and restaurants. The data was crawled from a popular restaurant review site. Tools used: Python with Selenium, BeautifulSoup, Pandas, Numpy, NetworkX, and SciPy libraries.

**Community Detection in Social Networks** 2015 – 2017*Using Graph Traversal Techniques*

Worked on implementation and testing of a novel community detection algorithm that uses a mix of breadth-first and depth-first traversals for fast unveiling of communities. Tools used: C, C++, and shell scripts. ([Github repository](#))

*Using Graph Sparsification*

Worked on design, implementation, and testing of a fast community detection algorithm that uses a geometric  $t$ -spanner to identify the edges with high edge betweenness and thus unraveling the community structure. Tools used: C++ with Boost Graph Library, Python with NetworkX library. ([Github repository](#))

PRESENTATIONS **Poster Presentations**

Modeling Graphs with Vertex Replacement Grammars, SIAM Workshop on Network Science 2019, Snowbird, UT, USA May 2019

Modeling Graphs with Vertex Replacement Grammars, NetSci 2019, Burlington, VT, USA May 2019

*Synchronous Hyperedge Replacement Graph Grammars*, Midwest Speech & Language Days, 2018, Notre Dame, IN, USA May 2018

**Paper Presentations**

*Synchronous Hyperedge Replacement Graph Grammars*, ICGT Jun 2018

*Detecting Community Structures in Social Networks by Graph*, CoDS Mar 2016

**SIGKDD, ACM Student Chapter, Heritage Institute of Technology**

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

**Invited Talks at Vidyasagar College, Kolkata**

An Introduction to Community Detection in Social Networks Jan 2016

Massive Open Online Courses Sep 2014

TEACHING EXPERIENCE	<b>Graduate Teaching Assistant</b>	Spring 2018
	<i>CSE 30151 - Theory of Computing</i> Instructor: Dr. David Chiang Department of Computer Science & Engineering, University of Notre Dame Graded assignments, exams, held office hours, and designed a <a href="#">tutorial</a> on drawing finite state machine with <a href="#">TikZ</a> library	
	<b>Graduate Teaching Assistant</b>	Fall 2017
	<i>CSE 30151 - Theory of Computing</i> Instructor: Dr. Peter M. Kogge Department of Computer Science & Engineering, University of Notre Dame Graded assignments, exams, held office hours, and designed a <a href="#">tutorial</a> on drawing finite state machine with <a href="#">TikZ</a> library	
	<b>Lecture Series</b>	
	<i>Introduction to Programming in Python</i> A 15 hour introductory course on programming in Python	Fall 2016, 2015
	<b>Workshops</b>	
	<i>Introduction to Programming in Python</i> A two-day introductory hands-on workshop on programming in Python	Apr 2016, 2015
SERVICE	<i>Volunteer Judge</i> , Northern Indiana Regional Science & Engineering Fair	2019
	<i>Subreviewer</i> , KDD 2019	2019
	<i>Subreviewer</i> , The Web Conference 2019	2018
	<i>Reviewer</i> , Data Mining and Knowledge Discovery (DMKD)	2018
	<i>Reviewer</i> , International Journal of Cooperative Information Systems (IJCIS)	2018
	<i>Subreviewer</i> , AAAI 2018	2017
	<i>Chair</i> , ACM Student Chapter, Heritage Institute of Technology	2016 – 2017
	<i>Vice Chair</i> , ACM Student Chapter, Heritage Institute of Technology	2015 – 2016
	<i>Secretary</i> , ACM Student Chapter, Heritage Institute of Technology	2014 – 2015
	<i>Student Member</i> , ACM	2013 –
COMPUTER SKILLS	<b>Advanced</b>	
	Python with NetworkX, matplotlib, Selenium, and BeautifulSoup libraries	
	<b>Intermediate</b>	
	C, C++, Boost Graph Library, $\text{\LaTeX}$ with Beamer class, Pandas, SQL, Shell scripts	
	<b>Basic</b>	
	Java, C#, WEKA, PySpark	
REFERENCES	<b>Tim Weninger</b>	Phone: +1-574-631-6770
	Assistant Professor Department of Computer Science & Engineering, University of Notre Dame E-mail: <a href="mailto:tweninger@nd.edu">tweninger@nd.edu</a>	

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