

Arinjoy Basak

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| CONTACT INFORMATION | Mobile number: +1 540 838 1704 Website: https://arinjoy-basak.github.io/ Email address: arinjoyb@vt.edu , basakarinyinjoy@gmail.com Address of communication: 1309 University City Boulevard, Apt #3 Blacksburg, Virginia - 24060, USA |
| RESEARCH INTERESTS | Data Science, Big Data Analytics , Machine Learning, Artificial Intelligence, Application of Analytics to Healthcare and Software Engineering |
| AFFILIATION AND ROLES | Network Dynamics and Simulation Sciences Laboratory, Biocomplexity Institute, Virginia Tech <input type="checkbox"/> Graduate Research Assistant, May 2017 - Present The Honor Society of Phi Kappa Phi <input type="checkbox"/> Inducted as member, December 2017 |
| EDUCATION | Currently a PhD student in the Department of Computer Science, Virginia Polytechnic Institute and State University, Blacksburg, Virginia <input type="checkbox"/> PhD Advisor: Anil Vullikanti <input type="checkbox"/> Current GPA: 3.95/4.00 <input type="checkbox"/> Expected to graduate in 2021 Completed Bachelor of Engineering in Computer Science and Technology, Indian Institute of Engineering Science and Technology, Shibpur, West Bengal, India <input type="checkbox"/> Passed in 2016, obtaining First Class with Honours. Final CGPA: 9.45/10.00 Completed Schooling from St. Xavier's Collegiate School, Kolkata, West Bengal, India <input type="checkbox"/> ISC Examination Passed in 2012. Final percentage: 97.5% <input type="checkbox"/> ICSE Examination passed in 2010. Final percentage: 94.2% |
| PUBLICATIONS | Jose Cadena, Arinjoy Basak , Anil Vullikanti, Xinwei Deng, ' <i>Graph Scan Statistics With Uncertainty</i> ', accepted for presentation at the <i>Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-18)</i> . Arinjoy Basak , Clark Cuccinel, Alexandra Cummings, Jose Cadena, Andrew Warren, Rebecca Wattam, Allan Dickerman, Anil Vullikanti, ' <i>Finding Coordinated Expression Motifs in RNA-SEQ Data</i> ', presented at the <i>18th International Conference on Systems Biology (ICSB 2017)</i> . Arinjoy Basak , Asit Kr. Das, ' <i>A Graph Based Feature Selection Algorithm Utilizing Attribute Intercorrelation</i> ', accepted for presentation in the <i>The 7th IEEE Annual Information Technology, Electronics and Mobile Communication Conference (IEEE-IEMCON 2016)</i> , and for publication in the IEEE Xplore Digital Library. The paper received the Best Paper in Data Mining Award in the conference. Arpan Sen, Shrestha Ghosh, Arinjoy Basak , Harsh Parshuram Puria, Sushmita Ruj, |

‘Achieving Data Survivability and Confidentiality in Unattended Wireless Sensor Networks’, accepted for presentation in *The 29th IEEE International Conference on Advanced Information Networking and Applications (AINA-2015)* and for publication in IEEE CPS Conference Proceedings.

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| TEACHING EXPERIENCE | Spring 2017 | Teaching Assistant and Guest Lecturer, Intro to Python CS 1064 |
| | Fall 2016 | Teaching Assistant, Intro to Python CS 1064 |
| SCIENTIFIC RESEARCH EXPERIENCE AND PROJECT WORK | Fall 2017 - Present | Graduate Research Assistant (August 2017 - Present) Focus: Dense subgraph mining in networks Advisor: Dr. Anil Vullikanti NDSSL, Biocomplexity Institute, Virginia Tech, Blacksburg, Virginia |
| | Spring 2017 - Summer 2017 | Graduate Research Assistant (March 2017 - August 2017) Title: Graph Scan Statistics With Uncertainty Advisor: Dr. Anil Vullikanti NDSSL, Biocomplexity Institute, Virginia Tech, Blacksburg, Virginia |
| | Summer 2017 | Graduate Research Assistant (May 2017 - August 2017) Title: Finding Coordinated Expression Motifs in RNA-Seq Data Advisor: Dr. Allan Dickerman, Dr. Anil Vullikanti NDSSL, Biocomplexity Institute, Virginia Tech, Blacksburg, Virginia |
| | Fall 2016 - Spring 2017 | Work on Software Analytics (August 2016 - February 2017) Title: Towards Intermediate Integration: A Study of Integration Cycle Lengths in Continuous Integration Advisor: Dr. Francisco Servant (Asstt. Prof), SEALAB, Dept. of Computer Science, Virginia Tech, Blacksburg, Virginia |
| | 2016 | Final Year Project Work towards fulfilment of B.E. Degree Title: A Graph Based Feature Selection Algorithm Utilizing Attribute Intercorrelation Advisor: Dr. Asit Kr. Das (Assoc. Prof), Dept. of Computer Science and Technology, Indian Institute of Engineering Science and Technology, Shibpur |
| | 2015 | Summer internship (9th May to 5th July, 2015) Title: a) Data Analytics for IITBombayX (based on OpenEdx InSight) - Detection of difficulty regions in lecture videos for students. b) Blended MOOCs Specification and User Documentation Advisor: Ms. Sukla Nag (IT Project Manager) Principal Investigator: Prof. Deepak B. Phatak Department of Computer Science and Engineering, Indian Institute of Technology, Bombay |
| | 2014 | Summer internship (22nd May to 18th July, 2014) Title: Achieving Data Survivability and Confidentiality in Unattended Wireless Sensor Networks Advisor: Dr. Sushmita Ruj (Asstt. Prof) Principal Investigator: Bimal K. Roy, Director, ISI |

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| 2014 | <p>4th Semester Project Work</p> <p>Title: a) Analysis of Twitter Data using the Quick Reduct Algorithm. b) Development of an algorithm for dynamic extraction of most relevant features from a dataset using graph based algorithms.</p> <p>Advisor: Dr. Asit Kr. Das (Assoc. Prof.), Dr. Saptarshi Ghosh (Asstt. Prof.),</p> <p>Dept. of Computer Science and Technology, Indian Institute of Engineering Science and Technology, Shibpur</p> |
| 2013 | <p>3rd Semester Project Work</p> <p>Title: Study of Rough Set theory and implementation of the Quick Reduct Extraction Algorithm using Rough Set theory.</p> <p>Advisor: Dr. Asit Kr. Das (Assoc. Prof.), Dept. of Computer Science and Technology, Indian Institute of Engineering Science and Technology, Shibpur</p> |
| 2013 | <p>Summer Project work</p> <p>Title: a) Simulation of Data Structures: Arrays, Linked Lists, Stacks, Queues and Basic Operations. b) Development of algorithms for checking graph connectivity, counting circuits, determining paths, obtaining spanning trees.</p> <p>Advisor: Dr. Asit Kr. Das (Assoc. Prof.), Dept. of Computer Science and Technology, Indian Institute of Engineering Science and Technology, Shibpur</p> |

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| High Level Languages: | Python, Java, Matlab, R, C, C++, SchemeLISP, Prolog, Verilog HDL, VHDL |
| Web Technologies: | HTML, CSS, JavaScript, PHP, Django |
| Database Frameworks: | MySQL, Oracle 10g |
| Version Control and Documentation: | L ^A T _E X, Git |
| Big Data Technologies: | Apache Spark, Apache Hadoop, Apache Hive |
| Hardware Exposure: | Intel 8085, 8051, Atmega16 (Embedded C) |
| Machine Learning tools: | WEKA |

- Was inducted as a member of the national Honor Society of Phi Kappa Phi on December 5th, 2017. Phi Kappa Phi is a national Honor Society that recognizes and promotes academic excellence in all fields of higher education and engages the community of scholars in service to others. Graduate students and undergraduate seniors determined by the Registrar to be in the top 10% of their class and undergraduate juniors in the top 7.5% of their class are eligible for membership.
- Conducted guest lectures in the position of Graduate Teaching Assistant for introducing and teaching students to use Python and associated libraries effectively in own work, during Spring 2017, Introduction to Python (CS 1064) course.
- Received the Best Paper in Data Mining Award for paper on ‘A Graph Based Feature Selection Algorithm Utilizing Attribute Intercorrelation’ presented at the 7th IEEE Annual Information Technology, Electronics and Mobile Communication Conference (IEEE-IEMCON 2016).

- Selected among 90 students to participate in the Eklavya Summer Internship Programme under Dr. D. B. Phatak, Department of Computer Science and Technology, Indian Institute of Technology, Bombay, from 9th May to 5th July, 2015. This project was supported by the MHRD National Mission on Education through ICT undertaken by the institute, and all the R&D contributions made by the students were released in open source. Was also selected Coordinator for the IITBombayX MIS System Specification activity, during May, 2015, where I worked on Use-Case specifications.
- Qualified with team as 1st Runner up in the Zonal Round, and participated in the National Round of the Indo-US Robo League 2014, in the Robotic Arm event, held on 22nd March, 2014, at IIT Bombay, during Aavriti 2014(formerly Aagomani), organised by EESA IIT Bombay, the qualifier for RoboGames, USA — World's Largest Robot Competition (Guinness Book of Records).
- Qualified for the award of the DST Inspire Scholarship - a scholarship awarded by the Department of Science and Technology, Government of India, to students in the top 1 percent in Class XII Board Examinations conducted by CISCE.
- Received the Winner's medal in 9th standard for the best essay in the 9th standard versus 10th standard English Essay Competition held in 2008 in St. Xavier's Collegiate School, Kolkata.

RELEVANT GRADUATE COURSEWORK

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| <input type="checkbox"/> Data Analytics 1 | <input type="checkbox"/> Theory of Algorithms |
| <input type="checkbox"/> Probability Distribution Theory | <input type="checkbox"/> Numerical Analysis 1 |
| <input type="checkbox"/> Statistical Inference | <input type="checkbox"/> Numerical Analysis 2 (current) |
| <input type="checkbox"/> Convex Optimization | <input type="checkbox"/> Data Analytics 2 (current) |

RELEVANT UNDERGRADUATE COURSEWORK

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| <input type="checkbox"/> Data Structures | <input type="checkbox"/> Theory of Computation |
| <input type="checkbox"/> Design and Analysis of Basic and Advanced Algorithms | <input type="checkbox"/> Operating Systems |
| <input type="checkbox"/> Discrete Structures and Logic | <input type="checkbox"/> Database Management Systems |
| <input type="checkbox"/> Digital Logic | <input type="checkbox"/> Compiler Design |
| <input type="checkbox"/> Computer Architecture and Organization | <input type="checkbox"/> Computer Networks |
| <input type="checkbox"/> Programming Paradigms | <input type="checkbox"/> Microprocessor Based Digital Design |
| <input type="checkbox"/> Engineering Mathematics | <input type="checkbox"/> Embedded Systems |
| <input type="checkbox"/> Basic Electrical Engineering | <input type="checkbox"/> Basic Electronics Engineering |

WORKSHOPS AND LECTURES ATTENDED

- Lecture Series and Hands-on Workshop on "Practical Crypto and Security Tools", under Mr. Vijay Kumar, R. C. Bose Centre for Cryptology and Security, as part of the Summer Internship Program in Cryptology, Indian Statistical Institute, Kolkata, June 2014.
- Attended workshop on Augmented Reality, conducted by Technophilia Systems, in association with Robotics and Computer Applications Institute of USA, held at Indian Institute of Technology, Bombay, on 23rd March 2014, which covered the basics of Augmented Reality using Java and Processing, and utilized the NyARToolkit library, GSVideo plugin, overlaying of 2D and 3D surfaces, markers and MetaIO SDK.
- Attended workshop on the iTouch Robotic Arm, conducted by Technophilia Systems, in association with Robotics and Computer Applications Institute of USA. This workshop was an integral part of the Indo-US Robo League 2013, which is the

qualifier for Robogames, USA — World's Largest Robot Competition (Guinness Book of Records).

REFERENCES

Dr. Anil Vullikanti, Associate Professor (Dept. of Computer Science), Network Dynamics and Simulation Sciences Laboratory, Biocomplexity Institute, Virginia Tech, vsakumar@vt.edu

Dr. Allan Dickerman, Research Assistant Professor (Dickerman Research Group), Network Dynamics and Simulation Sciences Laboratory, Biocomplexity Institute, Virginia Tech, allan@vt.edu

Dr. Francisco Servant, Assistant Professor, Dept. of Computer Science, Virginia Tech, fservant@vt.edu

Dr. Asit Kr. Das, Associate Professor, Dept. of Computer Science and Technology, Indian Institute of Engineering Science and Technology, Shibpur, akdas@cs.iiests.ac.in

Dr. Biplab Kr. Sikdar, Head of the Department, Dept. of Computer Science and Technology, Indian Institute of Engineering Science and Technology, Shibpur, biplab@cs.iiests.ac.in

Dr. Sushmita Ruj, Assistant Professor, Cryptology Research Group, Cryptology and Security Research Unit, Computer and System Sciences Division, Room No 921, ASU, S.N. Bose Bhavan, Indian Statistical Institute, Kolkata, sush@isical.ac.in

Ms. Sukla Nag, IT Project Manager, Department of Computer Science and Engineering, Indian Institute of Technology, Bombay, sukla80@yahoo.co.in