

# Arinjoy Basak

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## AFFILIATIONS

- **NDSSL, BIOCOMPLEXITY INSTITUTE, VIRGINIA TECH**  
May 2017 - Present
- **THE HONOR SOCIETY OF PHI KAPPA PHI**  
December 2017 - Present

## EDUCATION

### VIRGINIA TECH

#### PHD IN COMPUTER SCIENCE

Expected Fall 2021 | Blacksburg, VA  
Advisor: Dr. Anil Vullikanti  
Focus: Dense subgraph detection, Network Interdiction  
Cum. GPA: 3.95

### IEST, SHIBPUR

#### BE IN COMPUTER SCIENCE AND TECHNOLOGY

Grad. May 2016 | Howrah, West Bengal, India  
Cum. GPA: 9.45 / 10.0  
First Class with Honours

### ST. XAVIER'S COLLEGIATE SCHOOL

Grad. March 2012 | Kolkata, India

## COURSEWORK

Data Analytics • Probability Distribution Theory • Statistical Inference • Convex Optimization • Theory of Algorithms • Numerical Analysis • Artificial Intelligence • Computer Architecture • Programming Paradigms • Theory of Computation • Operating Systems • DBMS • Digital Design

## SKILLS

### PROGRAMMING

Over 5000 lines:

Python • Java • C • MySQL • HTML

Over 1000 lines:

Apache Spark • C++ • SchemeLISP • Prolog •  $\LaTeX$  • CSS

### FAMILIAR FRAMEWORKS

Apache Hadoop • Apache Hive • Matlab • PHP • JavaScript • Git • WEKA • VHDL • Verilog • Django • Intel 8085, 8051 Assembly Language • Atmega16 (Embedded C) • Oracle 10g

## RESEARCH INTERESTS

Data Science, Big Data Analytics, Machine Learning, Artificial Intelligence, Application of Analytics to Healthcare and Software Engineering

## RESEARCH EXPERIENCE

### NETWORK DYNAMICS AND SIMULATION SCIENCES

#### LABORATORY | GRADUATE RESEARCH ASSISTANT

May 2017 - Present | Virginia Tech

- Methods for dense subgraph detection in biological networks to report co-expressed and functionally related gene sets.
- Developing scan statistics for graphs with uncertainty.
- Developing methods for pattern detection in opioid use (current).

### DEPT. OF COMPUTER SCIENCE AND TECHNOLOGY | FINAL YEAR

#### PROJECT UNDER DR. ASIT KR. DAS

Fall 2015-Spring 2016 | IEST Shibpur

Development of a Graph Based Feature Selection Algorithm Utilizing Attribute Intercorrelation.

### DEPT. OF COMPUTER SCIENCE AND ENGINEERING | EKALAVYA

#### SUMMER INTERNSHIP PROGRAMME, UNDER DR. DEEPAK B. PHATAK AND MS. SUKLA NAG

May 2015 - July 2015 | IIT Bombay

Development of Video difficulty detection module for IITBombayX (based on OpenEdX InSight), and Blended MOOCs Specification and User Documentation.

### R. C BOSE CENTRE FOR CRYPTOLOGY AND SECURITY | SUMMER

#### INTERNSHIP PROGRAMME UNDER DR. BIMAL K. ROY, (DIRECTOR, ISI) AND DR. SUSHMITA RUJ

May 2014 - July 2014 | ISI, Kolkata

Achieving Data Survivability and Confidentiality in Unattended Wireless Sensor Networks.

### DEPT. OF COMPUTER SCIENCE AND TECHNOLOGY | PROJECT

#### UNDER DR. ASIT KR. DAS AND DR. SAPTARSHI GHOSH

Fall 2013 - Spring 2014 | IEST Shibpur

Rough set based Quick-Reduct algorithm implementation and analysis of Twitter data, development of graph based dynamic feature extraction algorithms.

## PUBLICATIONS

### AAAI 2017 | GRAPH SCAN STATISTICS WITH UNCERTAINTY

Jose Cadena, Arinjoy Basak, Xinwei Deng, Anil Kumar Vullikanti

### ICSB 2017 | FINDING COORDINATED EXPRESSION MOTIFS IN RNA-SEQ

#### DATA

Arinjoy Basak, Clark Cuccinell, Alexandra Cummings, Jose Cadena, Andrew Warren, Rebecca Wattam, Allan Dickerman, Anil Vullikanti

### IEEE-IEMCON 2016 | A GRAPH BASED FEATURE SELECTION ALGORITHM

#### UTILIZING ATTRIBUTE INTERCORRELATION

Arinjoy Basak, Asit Kr. Das

### IEEE-AINA 2015 | ACHIEVING DATA SURVIVABILITY AND

#### CONFIDENTIALITY IN UNATTENDED WIRELESS SENSOR NETWORKS

Arpan Sen, Shrestha Ghosh, Arinjoy Basak, Harsh Parshuram Puria, Sushmita Ruj

## ADDITIONAL WORK EXPERIENCE

### SEALAB | RESEARCH PROJECT UNDER DR. FRANCISCO SERVANT

Aug 2016 – Feb 2017 | Virginia Tech

Study of change integration lengths and practices in Continuous Integration environments with a focus on Travis-CI enabled environments. Paper on work was submitted to MSR 2017 Mining Challenge.

### CS 1064 - INTRO TO PYTHON, DEPT. OF COMPUTER SCIENCE, VIRGINIA TECH | GRADUATE TEACHING ASSISTANT

Fall 2016 – Spring 2017 | Blacksburg, VA

Conducted guest lectures for non-CS majors on utilizing Python effectively. Link: <https://youtu.be/EwseejAtoVY>

## AWARDS

December 2017	Inducted as member	The Honor Society of Phi Kappa Phi
October 2016	Best Paper Award	Best Paper in Data Mining, IEEE-IEMCON 2016
May 2015	Top 90 all over India	Ekalavya Summer Internship programme, IIT Bombay, supported by MHRD National Mission on Education through ICT
May 2015	Leadership position	Coordinator, IITBombayX MIS System Specification Activity
March 2014	Zonal qualifier and National Participant	Robotic Arm Event, Indo-US Robo League Aavriti 2014, EESA IIT Bombay
May 2012	Top 1% of Class XII students all over India in ISC Board Exams	DST Inspire Scholarship, awarded by Dept. of Science and Technology, Govt. of India
2008	Best Essay	9th vs. 10th Standard English Essay Competition, St. Xavier's Collegiate School, Kolkata

## REFERENCES

- Dr. Anil Vullikanti, Associate Professor (Dept. of Computer Science), Network Dynamics and Simulation Sciences Laboratory, Biocomplexity Institute, Virginia Tech, [vsakumar@vt.edu](mailto: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](mailto:allan@vt.edu)
- Dr. Francisco Servant, Assistant Professor, Dept. of Computer Science, Virginia Tech, [fservant@vt.edu](mailto: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](mailto: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](mailto: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](mailto: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](mailto:sukla80@yahoo.co.in)