

# ARNAB KUMAR PAUL

## Ph.D. Student in Computer Science at Virginia Tech

@ akpaul [at] vt [dot] edu  
📍 Blacksburg, VA, U.S.A.

☎ +1 (540) 998 - 1480  
🌐 <http://people.cs.vt.edu/akpaul/>

🏢 Distributed Systems and Storage Laboratory, Virginia Tech  
in arnabkrpaul



## RESEARCH EXPERIENCE

### Graduate Research Intern

#### Cray Inc.

Mentor: Cory Spitz, Nathan Rutman (Cray), and Scott White (LANL)

📅 Jun. 2019 – Aug. 2019

📍 Los Alamos, NM, U.S.A.

- Scalable metadata indexing for large scale distributed file systems.

### Graduate Student Summer Intern (Computation Scholar)

#### Lawrence Livermore National Laboratory

Advisor: Dr. Kathryn Mohror

📅 May 2018 – Aug. 2018

📍 Livermore, CA, U.S.A.

- Analyze the metadata and job statistics of HPC I/O workloads.
- Build predictive models of I/O workloads based on the time series server data.

### Graduate Student Summer Intern (Research Aide)

#### Argonne National Laboratory

Advisor: Dr. Ian Foster

📅 May 2017 – Aug. 2017

📍 Lemont, IL, U.S.A.

- Built a scalable monitoring solution for arbitrary file systems.

### Ph.D. Student @ Virginia Tech

#### Distributed Systems and Storage Laboratory

Advisor: Dr. Ali R. Butt

📅 Aug. 2015 – PRESENT

📍 Virginia Tech, Blacksburg, VA, U.S.A.

- Optimizing containers in HPC storage systems.
- Load balancing in large scale storage systems, such as Lustre.
- Auto-tuning of parallelism in Spark

### Masters Student @ National Institute of Technology, Rourkela

#### Information Security and Data Communication Laboratory

Advisor: Dr. Bibhudatta Sahoo

📅 May 2014 – May 2015

📍 NIT Rourkela, Odisha, India

- Dynamic virtual machine placement in cloud computing.

## TEACHING EXPERIENCE

### Adjunct Instructor (Virginia Tech) Aug. 2019 – PRESENT

- CS 2505: Intro Computer Organization - Fall 2019

### Graduate Teaching Assistant (Virginia Tech) Aug. 2015 – PRESENT

- CS 3214: Operating Systems - Spring 2019
- CS 5584: Network Security - Fall 2018
- CS 3114: Data Structures and Algorithms - Spring 2018
- CS 2506: Computer Org II - Fall 2017
- CS 2114: Software Design and Data Structures - Fall 2016, Spring 2017
- CS 1054: Introduction to Programming in Java - Fall 2015, Spring 2016

### Graduate Teaching Assistant (NIT Rourkela) Aug. 2014 – May 2015

- CS 171: Computing Lab - Autumn 2014, Spring 2015
- CS 670: Data Mining Lab - Spring 2015

## LIFE PHILOSOPHY

*"Your best teacher is your last mistake." - Dr. A. P. J. Abdul Kalam*

## RESEARCH STATEMENT

I am a fifth year Ph.D. student in the Department of Computer Science at Virginia Tech. I work in the Distributed Systems and Storage Laboratory headed by Dr. Ali R. Butt. My research interests include *cloud computing, distributed systems, distributed file systems and big data APIs*.

## EDUCATION

### Ph.D. in Computer Science

#### Virginia Tech

📅 Aug. 2015 – PRESENT (Expected: Jul. 2020)

- Advisor: Dr. Ali R. Butt
- GPA: 4.0/4.0

### M.S. in Computer Science & Applications

#### Virginia Tech

📅 Aug. 2015 – May 2018

- GPA: 3.85/4.0

### M.Tech. in Computer Science & Engineering

#### National Institute of Technology, Rourkela

📅 Aug. 2013 – May 2015

- Specialization: Software Engineering
- Advisor: Dr. Bibhudatta Sahoo
- GPA: 9.56/10.0

### B.Tech. in Computer Science & Engineering

#### West Bengal University of Technology

📅 Aug. 2009 – May 2013

- GPA: 9.02/10.0

## SKILLS

Lustre File System

Apache Spark

Containers

Edge Computing

IoT

C

C++

JAVA

Python

C#

SCALA

MySQL

HTML

CSS

UNIX

git

svn

latex

gnuplot

## PUBLICATIONS

### Book Chapters

- Paul, Arnab Kumar and Bibhudatta Sahoo (2017). *Dynamic virtual machine placement in cloud computing*. IGI Global, pp. 136–167.

### Conference & Workshop Proceedings






- Paul, Arnab K et al. (Nov. 2019). “Understanding HPC Application I/O Behavior Using System Level Statistics”. In: *Poster - SC 2019*.
- Paul, Arnab K, Ryan Chard, et al. (2019). “FSMonitor: Scalable File System Monitoring for Arbitrary Storage Systems”. In: *2019 IEEE Cluster*. IEEE.
- Paul, Arnab K et al. (2019). “Improving I/O Performance of HPC Application Using Intra-Job Scheduling”. In: *Work-In-Progress in Proceedings of the 4th Joint International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems (PDSW-DISC'19) in conjunction with SC'19*.
- Sim, Hyogi et al. (2019). “Cslim: Automated Extraction of IoT Functionalities from Legacy C Codebases”. In: *2019 8th International Workshop on Computing and Networking for IoT and Beyond (ComNet-IoT), Proceedings of the 20th International Conference on Distributed Computing and Networking*. ACM, pp. 421–426.
- Wadhwa, Bharti et al. (2019). “Resource Contention Aware Load Balancing for Large-Scale Parallel File Systems”. In: *2019 33rd IEEE International Parallel and Distributed Processing Symposium (IPDPS)*. IEEE.
- Paul, Arnab K, Arpit Goyal, et al. (2017). “I/O load balancing for big data hpc applications”. In: *2017 IEEE International Conference on Big Data (Big Data)*. IEEE, pp. 233–242.
- Paul, Arnab K, Steven Tuecke, et al. (2017). “Toward scalable monitoring on large-scale storage for software defined cyberinfrastructure”. In: *Proceedings of the 2nd Joint International Workshop on Parallel Data Storage & Data Intensive Scalable Computing Systems*. ACM, pp. 49–54.
- Paul, Arnab Kumar, Wenjie Zhuang, et al. (2016). “Chopper: Optimizing data partitioning for in-memory data analytics frameworks”. In: *2016 IEEE International Conference on Cluster Computing (CLUSTER)*. IEEE, pp. 110–119.
- Datta, Arjun and Arnab Kumar Paul (2014). “Online compiler as a cloud service”. In: *2014 International Conference on Advanced Communication Control and Computing Technologies (ICACCCT)*. IEEE, pp. 1783–1786.
- Paul, Arnab Kumar, Sourav Kanti Addya, et al. (2014). “Application of greedy algorithms to virtual machine distribution across data centers”. In: *11<sup>th</sup> IEEE India Conference INDICON 2014, Emerging Trends and Innovation of Technology*. IEEE, pp. 1–6.

## ACHIEVEMENTS




2020

 Bitshares Fellowship by CS @ VT

2019

 Member of Association for India's Development  
 Member of CS Graduate Council @ VT  
 Travel Grant IEEE Cluster '19  
 Member of Dean's Graduate Team @ VT  
 Student Volunteer, SC '19

2018

 Bitshares Fellowship by CS @ VT  
 Member of Dean's Graduate Team @ VT  
 Student Volunteer, SCiNet @ SC '18

2017

 President of Bengali Students' Ass. @ VT  
 Travel Grant IEEE BigData '17

2016







 Travel Grant IEEE Cluster '16  
 Student Volunteer, SC '16

2015



 Gold Medalist, CS @ NITRKL

## PROFESSIONAL SERVICES

Reviewer

 IEEE Transactions on Parallel and Distributed Systems - 2019, 2020  
 Cluster Computing Journal - 2019, 2020  
 ASTESJ Journal - 2018  
 IJGHPC Journal - 2018, 2019, 2020  
 AUTOSOFT Journal - 2018  
 MGS Journal - 2017


External Reviewer

 IEEE TSC Journal '18  
 BigData '17/'18, Cluster '17/'18, HPDC '17/'18, IC2E '17, ICCD '19, ICDCS '17/'18/'19, ICS '17/'18, IPDPS '18/'19/'20

## REFEREES

Dr. Ali R. Butt

@ butta@cs.vt.edu

 Virginia Tech  
Blacksburg, VA, U.S.A.