

SUSMIT SHANNIGRAHI

Colorado State University
Computer Science Department
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Education Colorado State University

2010-Present. Ph.D. Candidate in *Computer Science*,

Expected Graduation - Spring 2018

Topic: Named Data Networking for Large Scientific Data Management

Committee chair: Christos Papadopoulos

Committee members: Shrideep Pallickara, Indrakshi Ray, Patrick J. Burns, and Inder Monga

2013. Master of *Computer Science*

Jadavpur University

2009. Master of Science in *Computer Science*

Topic: Fast BGP Convergence Following Link/Router Failure

Thesis Supervisor: Swapan Kumar Ray

West Bengal University of Technology

2007. Bachelor of Computer Science and Engineering

Appointments 2013-Present. Research Assistant, Colorado State University, CO

► Investigates Named Data Networking (NDN) based protocols for Large Scientific Data management

2017. Intern, CableLabs, Louisville, CO

► Investigated NDN as the communication plane for 5G mobile networks

2013. Intern, Lawrence Berkeley National Lab, Berkeley, CA

► Investigated bit-torrent style scientific data retrieval over NDN

2010. Teaching Assistant, Colorado State University, CO

2009. Programmer Analyst, Cognizant Technology Solutions, Kolkata, India

**2008. Teaching Assistant, Data Communication and Networking Lab,
Jadavpur University, Kolkata, India**

Publications Peer Reviewed Articles

2017. Susmit Shannigrahi, Chengyu Fan, Greg White, IP OVER ICN, A MOBILITY MANAGEMENT PROTOCOL FOR 5G NETWORKS, UNDER REVIEW

2017. Susmit Shannigrahi, Chengyu Fan, Christos Papadopoulos, NAMED DATA NETWORKING STRATEGIES FOR IMPROVING LARGE SCIENTIFIC DATA TRANSFERS, UNDER REVIEW

- 2017. Susmit Shannigrahi, Chengyu Fan, and Christos Papadopoulos. REQUEST AGGREGATION, CACHING, AND FORWARDING STRATEGIES FOR IMPROVING LARGE CLIMATE DATA DISTRIBUTION WITH NDN: A CASE STUDY, In Proceedings of the 4th ACM Conference on Information-Centric Networking. ACM, 2017.
- 2015. Chengyu Fan, Susmit Shannigrahi, Steve Dibenedetto, et al. MANAGING SCIENTIFIC DATA WITH NAMED DATA NETWORKING, Proceedings of the Fifth International Workshop on Network-Aware Data Management, ACM, 2015
- 2015. Susmit Shannigrahi, Christos Papadopoulos, Edmund Yeh, Harvey Newman, et al. NAMED DATA NETWORKING IN CLIMATE RESEARCH AND HEP APPLICATIONS, In Computing in High Energy and Nuclear Physics (CHEP), 2015.
- 2014. Catherine Olschanowsky, Susmit Shannigrahi, and Christos Papadopoulos. SUPPORTING CLIMATE RESEARCH USING NAMED DATA NETWORKING. In Local & Metropolitan Area Networks (LANMAN), 2014 IEEE 20th International Workshop, pp. 1-6. IEEE, 2014.
- 2010. Swapan Kumar Ray and Susmit Shannigrahi, FAST BGP CONVERGENCE FOLLOWING LINK/ROUTER FAILURE. In Distributed Computing and Networking, pp. 473-484. Springer Berlin Heidelberg, 2010.

Under Preparation

- 2017. Susmit Shannigrahi, Chengyu Fan, Christos Papadopoulos, NDN-SCI, A MANAGEMENT FRAMEWORK FOR LARGE SCIENCE DATA

Extended Abstracts, Technical Reports and Internet-Drafts

- 2017. Greg White, Susmit Shannigrahi, Chengyu Fan, Internet Protocol Tunneling over Content Centric Mobile Networks, ICNRG Internet Draft
- 2017. Susmit Shannigrahi, Solving Large Scientific Data Management using Named Data Networking, CSU Graduate Student Showcase, Fort Collins, CO
- 2016. Susmit Shannigrahi, SciNet: A Secure Science Data Infrastructure with Named Data Networking, NSF Data Science Workshop, Seattle, WA
- 2015. Susmit Shannigrahi, Named Data Networking for Large Scientific Data Management, Seattle, NSF Data Science Workshop, WA
- 2013. Susmit Shannigrahi, Evaluating Named Data Networking for Large Scientific Data, Poster, ACM student research competition, Supercomputing 2013
- 2013. Susmit Shannigrahi, Evaluating Named Data Networking for Large Scientific Data, Poster, LBNL, CA
- 2013. Susmit Shannigrahi, Daniel Massey, Christos Papadopoulos, **Traceroute for Named Data Networking**, NDN Technical Report

- Grants** 2013. Co-author, NSF grant on "Supporting Climate Modeling Over Named Data Networking (NDN)". (Total award: \$1M., Funded Over 2013-2016, PI: Christos Papadopoulos, Co-PI: Cathie Olschanowsky and David Randall.)

Awards Awards

- 2016. Travel award to participate in NSF Data Science Workshop, UW, Seattle
- 2015. Travel award to participate in NSF Data Science Workshop, UW, Seattle
- 2013. NSF travel award for attending ICNP
- 2013. Best Innovative Poster, NDN for Scientific Data, Lawrence Berkeley National Lab
- 2007. Post Graduate Scholarship from Ministry of Human Resources Development (MHRD), Government of India

Workshops and Presentations Workshops

- 2016. "NSF sponsored graduate data science workshop", UW, Seattle, WA
- 2015. "NSF sponsored graduate data science workshop", UW, Seattle, WA
- 2014. "Operating Innovative Networks", LBNL, Berkeley, CA

Presentations

- 2017. Susmit Shannigrahi, **NDN-Android**, ICN 2017, Berlin, DE
- 2017. Susmit Shannigrahi, **Request Aggregation, Caching, and Forwarding Strategies for Improving Large Climate Data Distribution with NDN: A Case Study**, ICN 2017, Berlin, DE
- 2017. Susmit Shannigrahi, Chengyu Fan, Christos Papadopoulos, **Named Data Networking in Scientific Applications**, Memphis, TN
- 2017. Susmit Shannigrahi, **Revisiting Traceroute for NDN**, Online Seminar
- 2016. Susmit Shannigrahi, **Applying NDN to large scientific data**, Online Seminar
- 2016. Susmit Shannigrahi, **Scientific Data Applications in NDN**, Online Seminar
- 2015. Susmit Shannigrahi, Chengyu Fan, Steve DiBenedetto, Catherine Olschanowsky and Christos Papadopoulos, **Supporting Scientific Applications with NDN**, Denver, CO
- 2015. Susmit Shannigrahi, Christos Papadopoulos, **Managing Scientific Data with Named Data Networking**, Denver, CO
- 2015. Susmit Shannigrahi, Chengyu Fan, **NDN for Scientific Data Applications**, Online Seminar
- 2015. Susmit Shannigrahi, **Managing Scientific Data with NDN**, UCLA, CA
- 2014. Susmit Shannigrahi, Christos Papadopoulos, **Supporting Climate Applications over Named Data Networking (NDN)**, NOAA, Boulder, CO
- 2014. Susmit Shannigrahi, Christos Papadopoulos, **NDN-fuse**, Denver, CO
- 2014. Susmit Shannigrahi, Christos Papadopoulos **NDN-atmos**, CSU, Fort Collins, CO
- 2013. Susmit Shannigrahi, Steve DiBenedetto, **NDN for Scientific Data**, UCLA, CA
- 2012. Susmit Shannigrahi, Christos Papadopoulos **NDN-traceroute**, UCLA, CA
- 2012. Susmit Shannigrahi, Christos Papadopoulos **Benefit of CCN for large data**, UCLA, CA
- 2012. Susmit Shannigrahi, Daniel Massey, Christos Papadopoulos, **Benefit of CCN for large data**, Boulder, CO
- 2010. Susmit Shannigrahi, Fedora Medical Spin: In search of a comprehensive solution for healthcare community, Bangalore, India

2009. Susmit Shannigrahi, Redrawing and rewriting the Fedora Distribution process, Bangalore, India

**Teaching
and
Mentoring**

Courses Taught

- 2013. Teaching Assistant for CS370, “Operating Systems”, 42 local students
- 2012. Teaching Assistant for CS470DL, “Computer Architecture”, 10 online/remote students
- 2012. Teaching Assistant for CT320, “Network and System Administration”, 30 students
- 2012. Designed Assignments for Graduate Students, Using Named Data Networking over GENI, CSU and Purdue University
- 2011. Teaching Assistant for CS451, “Operating Systems”, 66 local students
- 2011. Teaching Assistant for CS451DL, “Operating Systems”, 20 online/remote students
- 2010. Teaching Assistant for CS155/156/157, “Introduction to Unix and C Programming”, 90 local students

Guest Lectures

- 2017. Named Data Networking and Other topics, CS557, “Advanced Networking”, Colorado State University
- 2017. Named Data Networking, CS457, “Computer Networks”, Colorado State University
- 2016. Named Data Networking, CS457, “Computer Networks”, Colorado State University
- 2016. Several Lectures in CS557, “Advanced Networking”, Colorado State University
- 2014. Several Lectures in CS557, “Advanced Networking”, Colorado State University
- 2013. Named Data Networking in CS457, “Computer Networks”, Colorado State University
- 2013. Several Lectures in CS370, “Operating Systems”, Colorado State University
- 2011. Several Lectures in CS451, “Operating System”, Colorado State University

Student Mentoring

- 2011. Ankur Sinha, Google Summer of Code, 2011

Service

Academic Service

- 2017. Technical Program Committee Member, ”NOM: Named-Oriented Mobility”, INFOCOM 2017
- 2017. Technical Program Committee Member, Demos and Posters tracks, ACM ICN 2017

Workshop Facilitation

- 2017. Tutorial: Running IoT Applications over ICN, ICN 2017, Berlin, DE
- 2017. NDN Hackathon, University of Memphis, Memphis, TN
- 2016. NDN Retreat and Hackathon, CSU, Fort Collins, CO
- 2016. NDN Hackathon, UCSD, La Jolla, CA

Reviews

Reviewed papers for ICN, ICFC-Networking, INFOCOM-NOM, ICNP, INFOCOM, CCR

**Other
Activities** **Selected Professional and Non-profit activities**

2011-2016. System Administrator, Network Security Lab, Colorado State University
2008-2009. System Administrator, Data Communication and Networking Lab, Jadavpur University, Kolkata, India
2007-2009. Fedora Mirror Manager, WBUT, Kolkata, India
2009-2012. Founder and contributor, Fedora Medical Special Interest group
2009-2011. Fedora Ambassadors Steering Committee Member, The Fedora Project
2005-2010. Fedora Ambassador, mentor, Fedora Freedia leader, The Fedora Project

Non-academic articles

2009. Save Bandwidth by Setting Up a Fedora Mirror, Open Source For You Magazine