Debopam Bhattacherjee

PhD Candidate, 4th year,
Network Design & Architecture Lab (NDAL), Systems Group,
Department of Computer Science, ETH Zürich

Contact No: +41 779421314
e-mail IDs: debopam.bhattacherjee@inf.ethz.ch | debopam.bhattacharya@gmail.com
Web page: https://bdebopam.github.io
Google Scholar profile: https://scholar.google.com/citations?user=hl3YvokAAAAJ
NDAL Web page: https://ndal.ethz.ch

Date of birth: 2 Aug 1987 | **Nationality**: Indian
Office Address: CAB E71.2, Systems Group, ETH Zürich, Universitätstrasse 6, 8092 Zürich, Switzerland

Current Research

- **Space Race**: Investigating the opportunities and challenges of Low Earth Orbit (LEO) satellite broadband. This project aims to explore various aspects of such massive constellations (like the ones being recently proposed by SpaceX, Amazon, and OneWeb) - topology design, routing, and transport challenges, to name a few. Project Web page: satnetwork.github.io
- **cISP**: Designing speed-of-light(**c**) **ISP** networks across the US and Europe with point-to-point microwave and fiber communications. Project Web page: cspeed.net
- **Fetch**: Analyzing the consolidation of the Web in or near public cloud. This project aims to leverage this consolidation in order to deliver Web content faster.
- **crISP**: Designing a decentralized **cr**edit-based OD (origin-destination) flow control for **ISP** networks leveraging programmable switches. The ISP networks can thus offer lossless core and significantly reduce over-subscription. (Initiated in summer 2019 as an intern at Max Plank Institute, Germany).

Publications

- **Untangling Header Bidding Lore**
  - Waqar Aqeel, Debopam Bhattacherjee, Balakrishnan Chandrasekaran, P. Brighten Godfrey, Gregory Laughlin, Bruce Maggs, Ankit Singla
  - PAM 2020 (to appear)
- **Network topology design at 27,000 km/hour** [Link] [Video (2 min)]
  - Debopam Bhattacherjee, Ankit Singla
  - ACM CoNEXT 2019
- **Measuring and exploiting the cloud consolidation of the Web** [Link]
  - Debopam Bhattacherjee, Muhammad Tirmazi, Ankit Singla
  - arXiv preprint arXiv:1906.04753 (2019)
- **Watch your step! Detecting stepping stones in programmable networks** [Link]
  - Debopam Bhattacherjee, Andrei Gurtov, Tuomas Aura
  - IEEE ICC Communication and Information Systems Security Symposium 2019
- **Gearing up for the 21st century space race** [Link]
  - Debopam Bhattacherjee, Waqar Aqeel, Ilker Nadi Bozkurt, Anthony Aguirre, Balakrishnan Chandrasekaran, P Godfrey, Gregory Laughlin, Bruce Maggs, Ankit Singla

- - ○ ACM HotNets 2018
  - **Dissecting Latency in the Internet's Fiber Infrastructure** [[Link](#)]
    - ○ Ilker Nadi Bozkurt, Waqar Aqeel, Debopam Bhattacherjee, Balakrishnan Chandrasekaran, Philip Brighten Godfrey, Gregory Laughlin, Bruce M Maggs, Ankit Singla
    - ○ arXiv preprint arXiv:1811.10737 (2018)
  - **cISP: A Speed-of-Light Internet Service Provider** [[Link](#)][[Video](#)]
    - ○ Debopam Bhattacherjee, Sangeetha Abdu Jyothi, Ilker Nadi Bozkurt, Muhammad Tirmazi, Waqar Aqeel, Anthony Aguirre, Balakrishnan Chandrasekaran, P Godfrey, Gregory P Laughlin, Bruce M Maggs, Ankit Singla
    - ○ arXiv preprint arXiv:1809.10897 (2018)
  - **A Cloud-based Content Gathering Network** [[Link](#)]
    - ○ Debopam Bhattacherjee, Muhammad Tirmazi, Ankit Singla
    - ○ USENIX HotCloud 2017

Talks

- "Network topology design at 27,000 km/hour" at ACM CoNEXT 2019
- "Gearing up for the 21st century space race" at ACM HotNets 2018
- "Speeding up the Internet" at ETH Zürich Systems Group Retreat 2018
- "A Cloud-based Content Gathering Network" at USENIX HotCloud 2017
- "Detection of Stepping Stones in Software Defined Networks" at ETH Zürich, April 2016

Teaching

- Future Internet, Spring 2019, ETH Zürich
- Computer Networks, Spring 2019, ETH Zürich
- Advanced Computer Networks, Spring 2018, Spring 2017, ETH Zürich
- Big Data, Autumn 2016 [[Link](#)], ETH Zürich
- Network Security, Autumn 2015 [[Link](#)], Aalto University, Finland
- Information Security, Autumn 2015 [[Link](#)], Aalto University, Finland

Supervision (completed)

- Master thesis, A. Isac, "Fast Web Browsing Over The Tor Network", ETH Zürich, 2019.
- Master thesis, T. Krebs, "Web browsing with privacy-enhanced man-in-the-middle", ETH Zürich, 2019.
- Master thesis, O. Butz, "Assessing unfairness in the Internet/Web ecosystem", ETH Zürich, 2018.
- Master thesis, J. Purtschert, "Turning Web page delivery upside down: A Content Gathering Network", ETH Zürich, 2018.

- Distributed Systems Laboratory (Master studies; 10 credits), A. Hussain & B. A. André, "LEO satellite constellation topology visualization", ETH Zürich, 2019.
- Distributed Systems Laboratory (Master studies; 10 credits), I. Andrei & U. Andrei, "Topology design for wide-area low-latency network with multiple media", ETH Zürich, 2018.

- Bachelor thesis, J. E. Saethre, "Simulations of Satellite-based low-latency Internet", ETH Zürich, 2019.
- Bachelor thesis, A. Köpe, "Performance of fetching web pages on mobile devices", ETH Zürich, 2019.
- Bachelor thesis, A. Benelli, "Customizing QUIC / HTTP2 for Web servers", ETH Zürich, 2019.
- Bachelor thesis, J. Gallmann, "Turning Web Page Delivery Upside Down: Optimizing a Smart Proxy", ETH Zürich, 2018.

- Bachelor thesis, C. Neukom, "Customizing QUIC for Web servers", ETH Zürich, 2018.

Education

- Erasmus Mundus Master's degree in Security and Mobile Computing (NordSecMob)
  - Track: KTH Royal Institute of Technology, Sweden + Aalto University, Finland
  - Graduation year: 2016
- Bachelor's degree in Computer Science and Engineering
  - Jadavpur University, India
  - Graduation year: 2009

Work Experience

- October 2016 - Present: PhD Candidate at ETH Zürich.
- June 2019 - August 2019: Research Fellow at Internet Architecture group [link], Max Planck Institute for Informatics, Saarbrücken, Germany
- June 2015 - July 2016: Research/Teaching Assistant at Aalto University, Finland.
- August 2009 - August 2014: IT Consultant at PwC and Deloitte.

Service Activities

- ACM IMC 2018 Shadow PC member

Achievements

- Received **IETF/IRTF Applied Networking Research Prize, 2020** for research on satellite networks.
- Selected for attending PhD Workshop on Next-Generation Cloud Infrastructure organized by Microsoft Research Cambridge on 25th and 26th of November, 2019
- NordSecMob (Erasmus Mundus Masters Course) Consortium Scholarship (2014 - 2016) by NordSecMob Consortium, February 2014
- Stood 60th out of approximately 70,000 students in Engineering in West Bengal Joint Entrance Examination (WBJEE), 2005
- National Merit Scholarship by Government of India, June 2003 - June 2009