

# Debopam Bhattacharjee

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PhD, ETH Zürich

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## EDUCATION

- PhD Computer Science (Networked Systems)  
ETH Zürich, Switzerland, 2021  
*Thesis title: Towards Performant Networking from Low-Earth Orbit*
- M.S. Security and Mobile Computing (NordSecMob)  
KTH Royal Institute of Technology, Sweden + Aalto University, Finland, 2016
- B.E. Computer Science & Engineering  
Jadavpur University, India, 2009

## EMPLOYMENT

- 11/2021 – Microsoft Research Lab, India  
Senior Researcher
- 10/2016 – 09/2021 Systems Group, Department of Computer Science, ETH Zürich, Switzerland  
PhD Candidate, Network Design Lab  
PhD supervisor: Prof. Dr. Ankit Singla
- 06/2019 – 08/2019 Max Planck Institute for Informatics, Saarbrücken, Germany  
Research Fellow at Internet Architecture group  
Supervisor: Prof. Dr. Anja Feldmann
- 06/2015 – 07/2016 Computer Science and Engineering Dept., Aalto University, Finland  
Research/Teaching Assistant  
Supervisor: Prof. Dr. Tuomas Aura, Prof. Dr. Andrei Gurtov
- 08/2009 – 08/2014 PwC & Deloitte, India  
Senior Technology Consultant, Technology Consultant

## RESEARCH INTERESTS

Low-Earth orbit satellite networks, Internet architecture, low-latency networks & applications, transport & congestion control, network measurement.

## PUBLICATIONS

### Refereed Publications

- 2022 *cISP: A Speed-of-Light Internet Service Provider* [USENIX NSDI]  
(DB, Waqar Aqeel), Sangeetha Abdu Jyothi, Ilker Nadi Bozkurt, William Sentosa, Muhammad Tirmazi, Anthony Aguirre, Balakrishnan Chandrasekaran, P. Brighten Godfrey, Gregory P. Laughlin, Bruce M. Maggs, Ankit Singla
- 2020 *In-orbit computing: an outlandish thought experiment?* [ACM HotNets]  
(DB, Simon Kassing), Melissa Licciardello, Ankit Singla
- 2020 *"Internet from Space" without Inter-satellite Links?* [ACM HotNets]  
Yannick Hauri, DB, Manuel Grossmann, Ankit Singla

- 2020 *Exploring the “Internet from space” with Hypatia* [ACM IMC]  
(Simon Kassing, DB), André Baptista Águas, Jens Eirik Saethre, Ankit Singla  
**Best Paper Award**
- 2020 *A bird’s eye view of the world’s fastest networks* [ACM IMC]  
DB, Waqar Aqeel, Gregory Laughlin, Bruce M. Maggs, Ankit Singla
- 2020 *Untangling Header Bidding Lore* [PAM]  
Waqar Aqeel, DB, Balakrishnan Chandrasekaran, P. Brighten Godfrey, Gregory Laughlin, Bruce Maggs, Ankit Singla  
**Best Dataset Award**
- 2019 *Network topology design at 27,000 km/hour* [ACM CoNEXT]  
DB, Ankit Singla  
**IRTF Applied Networking Research Prize 2020**
- 2019 *Watch your step! Detecting stepping stones in programmable networks* [IEEE ICC]  
DB, Andrei Gurtov, Tuomas Aura
- 2018 *Gearing up for the 21st century space race* [ACM HotNets]  
DB, Waqar Aqeel, Ilker Nadi Bozkurt, Anthony Aguirre, Balakrishnan Chandrasekaran, P Godfrey, Gregory Laughlin, Bruce Maggs, Ankit Singla
- 2017 *A Cloud-based Content Gathering Network* [USENIX HotCloud]  
DB, Muhammad Tirmazi, Ankit Singla

#### Preprints

- 2019 *Measuring and exploiting the cloud consolidation of the Web* [arXiv:1906.04753]  
DB, Muhammad Tirmazi, Ankit Singla
- 2018 *Dissecting Latency in the Internet’s Fiber Infrastructure* [arXiv:1811.10737]  
Ilker Nadi Bozkurt, Waqar Aqeel, DB, Balakrishnan Chandrasekaran, Philip Brighten Godfrey, Gregory Laughlin, Bruce M Maggs, Ankit Singla

#### TALKS

- *Towards measuring Low-Earth Orbit network performance* [LEOCONN’22, Oct 2022 & U. Surrey, July 2022]
- *Towards Performant Networking from Low-Earth Orbit* [AINTEC’21, U Cambridge, Dec, 2021 - Jan, 2022]
- *On improving low-Earth orbit satellite network performance* [LEOCONN’21, Microsoft Research, Juniper Networks, Feb - Jun, 2021]
- *In-orbit computing: an outlandish thought experiment?* [ACM HotNets 2020]
- *“Internet from Space” without Inter-satellite Links?* [ACM HotNets 2020]
- *Exploring the “Internet from space” with Hypatia* [ACM IMC 2020]
- *A bird’s eye view of the world’s fastest networks* [ACM IMC 2020]
- *Network topology design at 27,000 km/hour* [ACM CoNEXT 2019, APNIC-50, IETF-109]
- *Gearing up for the 21st century space race* [ACM HotNets 2018]
- *Speeding up the Internet* [ETH Zürich Systems Group Retreat 2018]
- *A Cloud-based Content Gathering Network* [USENIX HotCloud 2017]
- *Detection of Stepping Stones in Software Defined Networks* [Invited talk at ETH Zürich, 2016]

## TEACHING

- *Future Internet*, Spring 2021, Spring 2020, Spring 2019, ETH Zürich [Graduate]
- *Computer Networks*, Spring 2021, Spring 2020, Spring 2019, ETH Zürich [Undergraduate]
- *Advanced Computer Networks*, Spring 2018, Spring 2017, ETH Zürich [Graduate]
- *Big Data*, Autumn 2016, ETH Zürich [Graduate]
- *Network Security*, Autumn 2015, Aalto University [Graduate]
- *Information Security*, Autumn 2015, Aalto University [Graduate]

## SUPERVISION (COMPLETED)

### Internship

- 2022      *Mining social media to quantify network performance and user perception*, A. Taneja, MSR - India
- 2022      *Detecting wind and solar parks with multi-modal data*, P. Singh, MSR - India

### Master Thesis

- 2021      *BBR congestion control in LEO satellite networks*, C. Ettlin, ETH Zürich
- 2021      *Routing over dynamic Low Earth Orbit satellite networks*, D. B. Irani, ETH Zürich
- 2021      *Analyzing the Impact of GEO Arc Avoidance on LEO Constellation Performance*, F. Zafar, ETH Zürich
- 2020      *Routing for a satellite mega-constellation*, M. Grossmann, ETH Zürich
- 2020      *Simulating LEO satellite networks*, B. A. André, ETH Zürich
- 2019      *Fast Web Browsing Over The Tor Network*, A. Isac, ETH Zürich
- 2019      *Web browsing with privacy-enhanced MITM*, T. Krebs, ETH Zürich
- 2018      *Assessing unfairness in the Internet/Web ecosystem*, O. Butz, ETH Zürich
- 2018      *Turning Web page delivery upside down*, J. Purtschert, ETH Zürich

### Bachelor Thesis

- 2021      *Sun synchronous low Earth orbit satellite constellation design*, P. Eigensatz, ETH Zürich
- 2020      *Internet from space without inter-satellite laser?*, H. Yannick, ETH Zürich
- 2019      *Simulations of Satellite-based low-latency Internet*, J. E. Saethre, ETH Zürich
- 2019      *Performance of fetching web pages on mobile devices*, A. Köpe, ETH Zürich
- 2019      *Customizing QUIC/HTTP2 for Web servers*, A. Benelli, ETH Zürich
- 2018      *Optimizing a Smart Proxy*, J. Gallmann, ETH Zürich
- 2018      *Customizing QUIC for Web servers*, C. Neukom, ETH Zürich

## COMMUNITY SERVICE

- 2022      [LEOCONN'22](#) (1-day tutorial on satellite-based networking) *Co-organizer*
- 2021      IETF-111 side-meeting on SATCOM activities *Co-organizer*
- 2021      [LEOCONN'21](#) (Webinar on satellite-based networking) *Co-organizer*
- 2018      ACM IMC Shadow PC member

## AWARDS AND HONORS

- 2020 Best Paper Award at ACM IMC, *Exploring the “Internet from space” with Hypatia*.
- 2020 Best Dataset Award at PAM, *Untangling Header Bidding Lore*.
- 2020 IETF/IRTF Applied Networking Research Prize.
- 2019 Selected for PhD Workshop on Next-Generation Cloud Infrastructure organized by Microsoft Research, Cambridge.
- 2014 Awarded NordSecMob (Erasmus Mundus Master’s program) Consortium Scholarship.
- 2005 Ranked 60/70,000 in West Bengal Joint Entrance Examination (WBJEE).
- 2003 Awarded National Merit Scholarship by Government of India [2003 – 2009].

## SELECTED MEDIA COVERAGE

Complete listing and links available at <https://bdebopam.github.io>

- 04/2022 *Wireless Microwave Internet could mean the end of lag*. SYFY Wire.
- 12/2019 *Laser-Linked Satellites Could Deliver ‘Internet from Space’*. Washington Daily Report.
- 12/2019 *A new network design for the “internet from space”*. TechXplore.
- 08/2017 *A cloud-based content gathering network*. The morning paper.

Updated January 2023