

Debopam Bhattacharjee

Senior Researcher, Microsoft Research - India
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 and applications, congestion control.

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 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)

Master Thesis

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

Bachelor Thesis

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

COMMUNITY SERVICE

- | | |
|------|--|
| 2021 | IETF-111 side-meeting on SATCOM activities <i>Co-organizer</i> |
| 2021 | LEOCONN'21 (Webinar on satellite-based networking) <i>Co-organizer</i> |
| 2018 | ACM IMC <i>Shadow PC member</i> |

AWARDS AND HONORS

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|------|---|
| 2020 | Best Paper Award at ACM IMC, <i>Exploring the "Internet from space" with Hypatia</i> . |
| 2020 | Best Dataset Award at PAM, <i>Untangling Header Bidding Lore</i> . |
| 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>

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 2022