Aastha Mehta

Assistant Professor (tenure-track)
Computer Science Department, University of British Columbia, Vancouver

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Education

2012 – 2020 **Ph.D. in Computer Science (Summa Cum Laude)**
Max Planck Institute for Software Systems (MPI-SWS), Saarbrücken, Germany
and Saarland University (UdS), Saarbrücken, Germany
Advisors: Peter Druschel, Deepak Garg
Thesis: Ensuring Compliance with Data Privacy and Usage Policies in Online Services

2007 – 2011 **B.E. (Hons.) in Computer Science**
Birla Institute of Technology and Science (BITS) Pilani, Pilani Campus, India

Work Experience

2021 – **Assistant Professor (tenure-track)**
Computer Science Department, University of British Columbia, Vancouver, Canada

2020 – 2021 **Postdoctoral Researcher (Nov 2020 – Feb 2021)**
Max Planck Institute for Software Systems (MPI-SWS), Saarbrücken, Germany
Advisor: Peter Druschel
Focus Area: Privacy-preserving digital contact tracing for epidemic risk mitigation

2015 **Research Intern (three months)**
Systems and Networking Group, Microsoft Research, Cambridge, UK
Mentor: Manuel Costa
Focus areas: Secure multiparty computation in the Cloud, and designing oblivious ML algorithms.

2011 – 2012 **Member of Technical Staff**
NetApp Inc., Bengaluru, India
Manager: Paramita Das
Focus areas: Optimizing performance of the WAFL (Write Anywhere File Layout) file system checker.

2011 **Intern (six months)**
Advanced Technology Group, NetApp Inc., Bengaluru, India
Mentor: Ajay Bakre and Priya Sehgal
Focus areas: Improving the capacity utilization in Hadoop storage clusters.

2010 **Summer Research Intern (three months)**
MPI-SWS, Saarbrücken, Germany
Mentor: Peter Druschel
Focus areas: Deterministic record and replay for multicore systems.

Grants

2022 – 2025 **Intel (Transformative Server Architectures)**, co-PI
Blended systems: Building Efficient and Secure Next-Generation Datacenter Hardware and Software

2022 – 2025 **DND IDEaS Innovation Network**, co-PI
A Platform for Secure and Dependable Hierarchical Edge Processing on 5G

2022 – 2023 **UBC STAIR Grant**, lead PI
Serverless Should Not Be Privacy-Less

2021 – 2024 **DND/NSERC Discovery Grant Supplement**, PI
Mitigating Side-Channel Leaks in Next-Generation Cloud Systems

2021 – 2026 **NSERC Discovery Grant**, PI
Mitigating Side-Channel Leaks in Next-Generation Cloud Systems

Honors and Awards

2023   **Invited to Dagstuhl seminar "MAD: Microarchitectural Attacks and Defenses"**

2018   **Invited to Rising Stars Workshop in EECS**
One of 76 women researchers in Computer Science, and one out of only 3 from Europe selected to attend this academic career workshop.

2016   **Invited to the 4th Heidelberg Laureate Forum**
One of 200 young researchers selected to attend the forum. Also awarded Romberg travel grant fellowship, which covered the travel expenses.

Publications

Peer Reviewed

USENIX Security'22   **Pacer: Comprehensive Network Side-Channel Mitigation in the Cloud**
Aastha Mehta, Mohamed Alzayat, Roberta De Viti, Björn B. Brandenburg, Peter Druschel, Deepak Garg

Scientific Reports, 2022   **Listening to Bluetooth Beacons for Epidemic Risk Mitigation***
Gilles Barthe, Roberta De Viti, Peter Druschel, Deepak Garg, Manuel Gomez-Rodriguez, Pierfrancesco Ingo, Heiner Kremer, Matthew Lentz, Lars Lorch, **Aastha Mehta**, Bernhard Schölkopf
(*Authors listed in alphabetical order)

USENIX Security'17   **Qapla: Policy compliance in database-backed systems**
Aastha Mehta, Eslam Elnikety, Katura Harvey, Deepak Garg, Peter Druschel
USENIX Security Symposium, Vancouver, Canada

USENIX Security'16   **Thoth: Comprehensive Policy Compliance in Data Retrieval Systems**
Eslam Elnikety, **Aastha Mehta**, Anjo Vahldiek-Oberwagner, Deepak Garg, Peter Druschel
USENIX Security Symposium, Austin, USA

USENIX Security'16   **Oblivious Multi-Party Machine Learning on Trusted Processors**
Olga Ohrimenko, Felix Schuster, Cédric Fournet, **Aastha Mehta**, Sebastian Nowozin, Kapil Vaswani, Manuel Costa
USENIX Security Symposium, Austin, USA

EuroSys'15   **Guardat: Enforcing data policies at storage layer**
Anjo Vahldiek-Oberwagner, Eslam Elnikety, **Aastha Mehta**, Deepak Garg, Peter Druschel, Ansley Post, Rodrigo Rodrigues, Johannes Gehrke
European Conference on Computer Systems (EuroSys), Bordeaux, France

HiPC'11   **HDFS Space Consolidation**
Aastha Mehta, Deepti Banka, Kartheek Muthyala, Priya Sehgal, Ajay Bakre
Student Research Symposium, International Conference on High Performance Computing (HiPC)

Non-Peer Reviewed

2022 (Under review)   **Reconciling Security and Utility in Next-Generation Epidemic Risk Mitigation Systems**
Pierfrancesco Ingo, Nichole Boufford, Ming Cheng Jiang, Rowan Lindsay, Roberta De Viti, Matthew Lentz, Gilles Barthe, Manuel Gomez-Rodriguez, Bernhard Schölkopf, Deepak Garg, Peter Druschel, **Aastha Mehta**
arXiv: CoRR/abs/2011.08069

Invited Talks

Aug 2022   **PanCast: Listening to Bluetooth Beacons for Epidemic Risk Mitigation**
IIT Delhi, India

Apr 2022   **Pacer: Comprehensive Network Side-Channel Mitigation in the Cloud**
McGill University, Canada

Feb 2022   **Pacer: Comprehensive Network Side-Channel Mitigation in the Cloud**
University of Toronto, Canada

Sep 2021	**Pacer: Comprehensive Network Side-Channel Mitigation in the Cloud** ENS Lyon, France
May 2021	**PanCast: Listening to Bluetooth Beacons for Epidemic Risk Mitigation** UC San Diego, USA
Mar 2021	**Pacer: Comprehensive Network Side-Channel Mitigation in the Cloud** IIT Kharagpur, India
May 2019	**Pacer: Network Side-Channel Mitigation in the Cloud** University of Maryland, USA, Host: Bobby Bhattacharjee
Nov 2018	**Pacer: Network Side-Channel Mitigation in the Cloud** Systems lunch at Cornell University, USA, Host: Lorenzo Alvisi
Jul 2018	**Pacer: Efficient I/O Side-Channel Mitigation in the Cloud** First Workshop on Speculative Side Channel Analysis (WoSSCA), Amsterdam, Netherlands
Aug 2017	**Qapla: Policy Compliance in Database-Backed Systems** USENIX Security Symposium, Vancouver, Canada

Professional Activities

Organizer

SOSP	Poster Session Chair at Symposium on Operating Systems Principles, 2023
SRC	Chair of ACM Student Research Competition at SOSP 2023
OSDI Mentorship	OSDI Mentorship Scheme (co-organizer), 2020

Program Committee

SysTex	Workshop on System Software for Trusted Execution (2023)
S&P	IEEE Oakland S&P (2023)
USENIX Security	USENIX Security Symposium (2022, 2023)
EuroSys	European Conference on Computer Systems (2021, 2022)
SYSTOR	Systems and Storage Conference (2021)
PriSC	Workshop on Principles of Secure Compilation (2021)
EuroDW	EuroSys Doctoral Workshop (2021)
MiddlewareDW	Middleware Doctoral Symposium (2020)

Editorial Board

JSys	Journal of Systems Research, Systems Security track (2022)

External Reviewer

ASPLOS	Architectural Support for Programming Languages and Operating Systems (2022)
HotOS	Hot Topics in Operating Systems (2017)
OSDI	Operating Systems Design and Principles (2016)
FC	Financial Cryptography (2016)
ASPLOS	Architectural Support for Programming Languages and Operating Systems (2015)
MobiSys	Mobile Symposium (2015)
EuroSys	European Conference on Computer Systems (2014)

Teaching Experience

Spring 2023	**Instructor**, CPSC 317, Internet Computing (undergraduate course)
Fall 2022	**Instructor**, CPSC 538M, Systems Security (grad course)
Fall 2021	**Instructor**, CPSC 538M, Security & Privacy in the Era of Side Channels (grad course)

Winter 2019	**Co-instructor**, Operating Systems (core course), MPI-SWS/UdS
	Lectures on storage subsystem.
Summer 2016	**Teaching Assistant**, Secure Information Flow Control in Systems (seminar), MPI-SWS/UdS
	Assisted in seminar design, teaching, and evaluation
Summer 2013	**Teaching Assistant**, Operating Systems (core course), MPI-SWS/UdS
	Assisted in designing and evaluating assignments and exams.

Advising

2022 –	Praveen Gupta (M.Sc. student, UBC)
2022 –	Yayu Wang (M.Sc. student, UBC)
2022 –	Rut Vora (M.Sc. student, UBC)
2022 –	Tanya Prasad (Undergrad thesis, BITS Pilani)
2021 –	Amir Sabzi (M.Sc. student, UBC)
2021 – 2022	Kasra Kamal (Undergrad Hons. thesis, UBC), Received Rick Sample Memorial Award
2021 – 2022	Nichole Boufford (M.Sc. student, UBC)
2021 – 2021	Ming Cheng Jiang (USRA, UBC), Work Learn International Undergraduate Research Award
2021 – 2021	Rowan Lindsay (USRA, UBC), Science Undergraduate Research Experience Award
2021 – 2021	Nichole Boufford (USRA, UBC), Science Undergraduate Research Experience Award

Mentoring

2021 –	Pierfrancesco Ingo (Ph.D. student, MPI-SWS)
2017 –	Roberta De Viti (Ph.D. student, MPI-SWS)
2016 – 2019	Mohamed Alzayat (Ph.D. student, MPI-SWS)
2016	Katura Harvey (Graduate Intern, MPI-SWS)