Devashish Gosain

PhD Scholar

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Education

2015–present **PhD (pursuing)**, *IIIT-Delhi*, India.
CGPA: 10

2013-2015 **Master of Technology**, *Birla Institute of Technology*, Ranchi, India.
CGPA: 8.6

2008-2012 **Bachelor of Technology**, *Guru Gobind Singh Indraprastha University*, Delhi, India.
Score: 76%

Research Interests

Networks and Security.

Distributed Systems.

Selected Publications

2020 **SiegeBreaker: An SDN Based Practical Decoy Routing System**, *accepted for the publication in Proceedings on Privacy Enhancing Technologies (PETS)*.
Authors: Piyush Kumar Sharma, **Devashish Gosain**, Himanshu Sagar, Chaitanya Kumar, Aneesh Dogra, Vinayak Naik, H.B. Acharya, Sambuddho Chakravarty

2019 **CAMP: cluster aided multi-path routing protocol for wireless sensor networks**, *accepted for the publication in Wireless Networks, Springer*.
Authors: Mohit Sajwan, **Devashish Gosain**, Ajay. K. Sharma

2018 **Where The Light Gets In: Analyzing Web Censorship Mechanisms in India**, *accepted for the publication in proceedings of Internet Measurement Conference (IMC)*.
Authors: Tarun Kumar Yadav*, Akshat Sinha*, **Devashish Gosain***, Piyush Sharma, Sambuddho Chakravarty. (*All authors have equal contributions.)

2018 **Hybrid energy-efficient multi-path routing for wireless sensor networks**, *accepted for the publication in Journal of Computers and Electrical Engineering, Elsevier*.
Authors: Mohit Sajwan, **Devashish Gosain**, Ajay. K. Sharma

2017 **The Devil's in The Details: Placing Decoy Routers in the Internet**, *accepted for the publication in proceedings of Annual Computer Security Applications Conference (ACSAC)*.
Authors: **Devashish Gosain**, Anshika Aggarwal, H. B. Acharya and Sambuddho Chakravarty

2017 **Mending Wall: On the Implementation of Censorship in India (Best Student Paper)**, *accepted for the publication in proceedings of EAI International Conference on Security and Privacy in Communication Networks (SECURECOMM)*.
Authors: **Devashish Gosain**, Anshika Aggarwal, Sahil Shekhawat, H. B. Acharya and Sambuddho Chakravarty

2017 **Few Throats to Choke: On the Current Structure of the Internet**, *accepted for the publication in proceedings of Local Computer Networks (LCN)*.
Authors: H. B. Acharya*, Sambuddho Chakravarty* and **Devashish Gosain***. (*All authors have equal contributions.)

2017 **DSERR: Delay Sensitive Energy Efficient Reliable Routing Algorithm for wireless sensor networks**, *accepted for the publication in Wireless Personal Communication (WPC), Springer*.
Authors: **Devashish Gosain**, Itu Snigdh, Mohit Sajwan

2016 **Analysis of scalability for routing protocols in wireless sensor networks**, *Optik-International Journal for Light and Electron Optics, Elsevier*.
Authors: **Devashish Gosain**, Itu Snigdh, Mohit Sajwan

2016 **Optimal sink placement in backbone assisted wireless sensor networks**, *Egyptian Informatics Journal, Elsevier*.
Authors: Itu Snigdh, **Devashish Gosain**, Nisha Gupta

2015 **Energy Analysis for Trajectory based Sink Mobility in WSN**, *Procedia Computer Science, Elsevier*.
Authors: Itu Snigdh, **Devashish Gosain**

2015 **Performance Comparison of Routing Protocols in Bipartite Wireless Sensor Network**, *International Journal of Electrical and Computer Engineering*.
Authors: **Devashish Gosain**, Itu Snigdh

Selected Research Projects

Internet Cartography and Censorship.
Analyzed how inferences drawn from Internet maps can be used to aid (Anti-)censorship? Constructed map of the Internet and analyzed major players who control it; what impact does it have on censorship?

Maginot Lines and Tourniquets : On the Defendability of National Cyberspace.
Studied the problem of constructing a nation-wide Line of Defense. Identified a few network locations that can serve as a cordon to monitor and filter cyber attacks, for the entire nation.

Telemetron: Measuring Network Capacity Between Off-Path Remote Hosts.
Developed a novel tool to estimate bandwidth between off-path remote hosts on the Internet. It achieved $\approx 92\%$ accuracy against ground truth.

Constraint Minimization techniques for Wireless Sensor Networks (WSNs).
Proposed a new scheme Quasi-Random Deployment, to place sensors in the field with a novel approach to place sink in backbone assisted WSNs. Developed a new routing protocol which minimizes energy costs and delays.

Research Internships

Sept. 2019 - Dec. 2019 **Visiting Scholar**, *Brigham Young University*, Utah, USA.
Automatic Detection and Prevention of Fake Key Attacks in Secure Messaging.
Popular IM applications *e.g.,* WhatsApp provide end-to-end encryption for billions of users. Designed several defenses for fake key attacks and use a threat analysis to identify which attacks each defense can automatically detect or prevent.

Skills

Programming Languages.
C, C++, Java, Python, dotNet, Matlab

Web Technologies.
HTML, CSS, JavaScript

Simulators.
Prowler, Qualnet, C-BGP, Omnet++, NS3

Invited Talks

Feb. 2020 **Internet Maps and Censorship**, *COSIC, KU Leuven*, Belgium.

Teaching Assistant

Secure Coding
Network Security
Scientific Communication
Software Defined Networks
Security Engineering

Languages

Hindi Native
English Proficient

References

Dr. Sambuddho Chakravarty (PhD Advisor), IIIT-Delhi
Dr. H.B. Acharya, Rochester Institute of Technology, NY, USA
Dr. Kent Seamons, Brigham Young University, Utah, USA
Dr. Daniel Zappala, Brigham Young University, Utah, USA