

UTKARSH GOEL

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PROFESSIONAL PREPARATIONS

Doctor of Philosophy (Ph.D.) in Computer Science

Montana State University

Outstanding Ph.D. Researcher Award

May 2017

Bozeman, MT, USA

Master of Science in Computer Science

Montana State University

GPA: 3.77 on a scale of 4.00

May 2017

Bozeman, MT, USA

Bachelor of Technology in Computer Engineering

Aligarh Muslim University

GPA: 8.3 on a scale of 10.0

May 2012

Aligarh, India

RESEARCH INTERESTS

Mobile Web performance, Internet measurements, CDN performance, JavaScript optimizations, and browser performance

PROFESSIONAL APPOINTMENTS

Architect, Akamai Technologies, San Francisco, CA

July 2017 - Present

- Member of the cutting-edge arm for applied R&D in Akamai's Web Performance business unit, the Foundry Web Performance team.
- Responsible for exploring and prototyping of new and faster Web technologies for improved performance.
- Participate and collaborate with field experts at various industrial and academic institutions through networking conferences and technical summits.
- Perform extensive investigation on Akamai's global infrastructure of content delivery to diagnose and address challenging Web performance problems.
- Explore opportunities to extend Akamai's infrastructure for new and innovative technologies, such as Internet of Things and Augmented Reality.

Web Performance Research Engineer (Intern), Akamai Technologies, San Francisco, CA

Summers of 2015 and 2016

Mentors: Dr. Moritz Steiner, Stephen Ludin, Erik Nygren, Wontaek Na, and Martin Flack

- Led investigations on Web performance bottlenecks pertaining to HTTP/2 and IPv6 protocols in a large-scale content delivery network.
- Performed measurement studies to understand impact of cellular network proxies and third-party scripts on Web performance.
- Collaborated with several architects and performance engineers to refine my research directions and develop new techniques to improve mobile Web experience.
- Published and presented novel research at top-tier mobile networking and systems conferences.

Research Assistant, Networks Lab, Montana State University, Bozeman, MT

August 2012 to May 2017

- Pursued several research problems in area of content server selection to improved client perceived Web performance.

- Collaborated with well-reputed researchers at various academic institutions on several research projects.
- Mentored several graduate and undergraduate students in their research projects.
- Invited for presenting novel research at departmental seminars and advanced graduate classes.

Teaching Assistant, Computer Science Department, Montana State University, Bozeman, MT

August 2012 to May 2017

- Assisted undergraduate students with in-lab assignments.
- Conducted occasional lectures to discuss certain networking topics in detail.

Summer Associate, Livewire Inc., Houston, TX (Acquired by H&R Block)

Summer of 2013

- Worked with a startup to develop a Tele-Presence Web application for Tax and Health related services.
- Applied agile software development methodologies to increase both personal and team efficiency.

PUBLICATIONS

1. Santiago Vargas, Aruna Balasubramanian, Moritz Steiner, Utkarsh Goel. "Characterizing JSON Traffic Patterns on a CDN", in ACM Internet Measurement Conference (IMC), October 2019.
2. Rich Salz and Utkarsh Goel. "Position Paper on Signed Exchanges", in Internet Architecture Board Workshop on Exploring Synergy between Content Aggregation and the Publisher Ecosystem (ESCAPE), July 2019.
3. Utkarsh Goel and Martin Flack. "Shadow: Active DNS Scanning", in Akamai Inside Research Symposium (AIRS), March 2019.
4. Utkarsh Goel, Moritz Steiner, Martin Flack, and Stephen Ludin. "Eliding Superfluous JavaScript and CSS for Faster Mobile Websites", in Akamai Inside Research Symposium (AIRS), March 2019.
5. Utkarsh Goel and Stephen Ludin. "Impact of Android's Battery-Saver Mode on Mobile Web Performance", in Akamai Inside Research Symposium (AIRS), March 2019.
6. Utkarsh Goel, Moritz Steiner, and Yoav Weiss. "Experiences with Aggressive Connection Coalescing over HTTP/2", in Akamai Inside Research Symposium (AIRS), February 2018.
7. Utkarsh Goel, Martin Flack, Stephen Ludin, and Moritz Steiner. "Techniques to Accelerate Virtual Reality Webpages (WebVR)", in Akamai Inside Research Symposium (AIRS), February 2018.
8. Utkarsh Goel. "Internet Measurements and Application Layer Optimizations for Faster Web Communications", Doctoral Thesis, April 2017.
9. Utkarsh Goel, Moritz Steiner, Mike P. Wittie, Stephen Ludin, and Martin Flack. "Domain-Sharding for Faster HTTP/2 in Lossy Cellular Networks", arXiv preprint arXiv:1707.05836, July 2017.
10. Utkarsh Goel, Moritz Steiner, Mike P. Wittie, Martin Flack, and Stephen Ludin. "Measuring What is Not Ours: A Tale of 3rd Party performance", in the proceedings of ACM Passive and Active Measurements Conference (PAM), March 2017.
11. Utkarsh Goel, Moritz Steiner, Mike P. Wittie, Martin Flack, and Stephen Ludin. "A Case for Faster Mobile Web in Cellular IPv6 Networks", in the proceedings of ACM Conference on Mobile Computing and Networking (MobiCom), October 2016.
12. Utkarsh Goel, Moritz Steiner, Wontaek Na, Mike P. Wittie, Martin Flack, and Stephen Ludin. "Are 3rd Parties Slowing Down the Mobile Web?" in the proceedings of ACM S3 Workshop, October 2016.
13. Utkarsh Goel, Moritz Steiner, Mike P. Wittie, Martin Flack, and Stephen Ludin. "Poster: HTTP/2 Performance in Cellular Networks", in the proceedings of ACM Conference on Mobile Computing and Networking (MobiCom), October 2016.
14. Utkarsh Goel, Moritz Steiner, Mike P. Wittie, Martin Flack, and Stephen Ludin. "Detecting Cellular Middleboxes using Passive Measurement Techniques", in the proceedings of ACM Passive and Active Measurements Conference (PAM), March 2016.

15. Utkarsh Goel, Mike P. Wittie, KC Claffy, and Andrew Le. "Survey of End-to-End Mobile Network Measurement Testbeds, Tools, and Services", in the proceedings of IEEE Communications Surveys and Tutorials, Volume: 18, Issue: 1, First quarter 2016.
16. Utkarsh Goel, Mike P. Wittie, and Moritz Steiner. "Faster Web through Client-assisted CDN Server Selection", in the proceedings of IEEE International Conference on Computer Communications and Networks (ICCCN), August 2015.
17. Samuel Micka, Utkarsh Goel, Hanlu Ye, Mike P. Wittie, and Brendan Mumeey. "PCP: Internet Latency Estimation Using CDN Replicas", in the proceedings of IEEE International Conference on Computer Communications and Networks (ICCCN), August 2015.
18. Utkarsh Goel, Clint Cooper, Brittany T. Fasy, and Mike P. Wittie. "A First Look at Web Browsing Predictions using DNS Logs", in the proceedings of Conference on Software Engineering and Data Engineering (SEDE), September 2016.
19. Utkarsh Goel, James Espeland, Upulee Kanewala, and Mike P. Wittie. "Quality Assurance of a Mobile Network Measurement Testbed Through Systematic Software Testing", in the proceedings of Conference on Software Engineering and Data Engineering (SEDE), September 2016.
20. Utkarsh Goel, Clemente Izurieta, and Mike P. Wittie. "Understanding Factors Influencing the Citation Count of Networking Conference Papers", in the proceedings of Conference on Software Engineering and Data Engineering (SEDE), October 2015.
21. Utkarsh Goel, Ajay Miyapuram, Mike P. Wittie, and Qing Yang. "MITATE: Mobile Internet Testbed for Application Traffic Experimentation", in the proceedings of Mobile and Ubiquitous Systems: Computing, Networking and Services (MOBIQUITOUS), December 2013.
22. Utkarsh Goel, Ajay Miyapuram, Mike P. Wittie, and Qing Yang. "MITATE: Mobile Internet Testbed for Application Traffic Experimentation", (poster paper) in the proceedings of USENIX Symposium on Networked Systems Design and Implementation (NSDI), April 2013.
23. USENIX; login: issue: August 2013, Volume 38, Number 4, in the technical summary of USENIX Symposium on Networked Systems Design and Implementation (NSDI), April 2013.
24. Mohammed Abdul Qadeer, Kanika Shah, and Utkarsh Goel. "Voice - Video Communication on Mobile Phones and PCs' using Asterisk EPBX", in the proceedings of IEEE Conference on Communication Systems and Network Technologies (CSNT), May 2012.
25. Utkarsh Goel, Kanika Shah, and Mohammed Abdul Qadeer. "The Personal SMS Gateway", in the proceedings of IEEE Conference on Communication Software and Networks (ICCSN), May 2011.

BLOG POSTS

1. **Experiment: Improving Page Load Times with Script-Streaming.**
<https://developer.akamai.com/blog/2018/07/17/experiment-improving-page-load-times-with-script-streaming/>, July 2018.
2. **Experiments with Browser Pre-connects.**
<https://developer.akamai.com/blog/2018/06/25/experiments-with-browser-preconnects/>, June 2018.
3. **How-To: Add Timing-Allow-Origin Headers to Improve Site Performance Measurement.**
<https://developer.akamai.com/blog/2018/06/13/how-to-add-timing-allow-origin-headers-to-improve-site-performance-measurement/>, June 2018.
4. **Does Android's Battery-Saver Degrade the Mobile Web Experience?**
<https://developer.akamai.com/blog/2018/05/29/does-androids-battery-saver-degrade-the-mobile-web-experience/>, May 2018.
5. **Beware of PerformanceTiming.domInteractive.**
<https://developer.akamai.com/blog/2017/12/04/beware-performancetiming-dominteractive/>, December 2017.
6. **How-To: Replying Cellular Network Characteristics on Cloud Infrastructure.**
<https://developer.akamai.com/blog/2017/11/27/replaying-cellular-network-characteristics-cloud-infrastructure/>, November 2017.

HONORS AND AWARDS

1. Outstanding Ph.D. Researcher Award by Montana State University for excellent scientific contributions made in the field of computer networking, April 2016.
2. Winner of the Three Minute Thesis Competition at Montana State University, March 2017.
3. Best Technical Solution for the Data Competition at Montana State University, October 2016.
4. Best Question of the Session Award by ACM MobiCom, October 2016.
5. Enhanced Graduate Teaching Assistant position by Montana State University, 2016.
6. Runner-up of the Three Minute Thesis Competition at Montana State University, March 2016.
7. Travel award from ACM to attend and present research at ACM MobiCom conference, October 2016.
8. Travel award from NSF to attend PhantomNet Workshop, 2015.
9. Travel award from IEEE to attend and present research at ICCCN conference, August 2015.
10. Travel award from ACM to attend CoNEXT conference, October 2014.
11. Travel award from ACM to attend IMC, August 2014.
12. Travel award from ACM to attend and present research at IMC, August 2013.
13. Travel award from USENIX to attend and present research at NSDI, March 2013.
14. Sir Syed Excellence in Science Award to pursue graduate studies in the USA, April 2012.
15. Merit Research Scholarship by Aligarh Muslim University for encouraging undergraduate research, 2011.

OTHER PRESENTATIONS AND INVITED TALKS

1. Changing Perception with Augmented Reality, at the Three Minute Thesis Competition, Montana State University 2017.
2. Towards a Faster Mobile Web, at Gianforte School of Computing Monday Seminar 2016.
3. Web Performance in Cellular Networks, at Akamai Summer Intern Showcase 2016.
4. Understanding Cellular Networks from Akamai's Perspective, at Akamai Summer Intern Showcase 2015.
5. Making the Internet Faster, at the Three Minute Thesis Competition, Montana State University 2016.
6. MITATE: Mobile Internet Testbed for Application Traffic Experimentation, at News & Community Feedback Session, ACM Internet Measurement Conference 2013.
7. MITATE: Mobile Internet Testbed for Application Traffic Experimentation, at Student Research Celebration, Montana State University, 2013.

SYNERGISTIC ACTIVITIES

- PlanetLab Consortium Member 2012 - Present
- Association for Computing Machinery Member 2016 - Present
- TPC member: IEEE.ACM IWQoS 2018; IEEE ICCCN 2018; IFIP Networking 2018; AIRS 2018; IWQoS 2017; IWQoS 2016; IPCCC 2015; ICC 2015; SocialCom 2011.
- Graduate Representative/Mentor: ZHCET - North America 2013; Indian Student Association MSU 2012, 2013.