

CONTACT INFORMATION	<p>Chair of Connected Mobility, I11 Department of Informatics Technische Universität München Boltzmannstraße 3 85748 Garching bei München, Germany</p> <p>✉ bajpaiv@in.tum.de 🌐 www.vaibhavbajpai.com</p>	
RESEARCH INTERESTS	Internet Measurements	
AWARDS	IEEE ComSoc Award for the Best Dissertation in Network and Service Management	2017
EDUCATION	<p>Jacobs University Bremen, Germany</p> <ul style="list-style-type: none"> – Doctor of Philosophy, Computer Science 2012 – 2016 – Master of Science, Computer Science 2010 – 2012 <p>Uttar Pradesh Technical University, India</p> <ul style="list-style-type: none"> – Bachelor of Technology, Computer Science and Engineering 2005 – 2009 	
EXPERIENCE	<p>TU München, Germany (– advised by Jörg Ott)</p> <ul style="list-style-type: none"> – Postdoctoral Fellow 2017 – <p>Jacobs University Bremen, Germany (– advised by Jürgen Schönwälder)</p> <ul style="list-style-type: none"> – Postdoctoral Fellow 2016 – 2016 – Research Associate 2012 – 2016 – Student & Teaching Assistant 2011 – 2014 <p>Infosys Technologies Ltd, Bangalore, India</p> <ul style="list-style-type: none"> – Systems Engineer 2009 – 2010 	
PROJECTS	<p>Flamingo FP7 EU Project – Management of the Future Internet 2015 – 2016</p> <ul style="list-style-type: none"> – Responsible for WP1 – Contributions to WP2, WP3, WP4, and WP5 <p>Leone FP7 EU Project – From Global Measurements to Local Management 2012 – 2015</p> <ul style="list-style-type: none"> – Contributions to WP1, WP2, WP3 and WP4 	
TEACHING	<p>Lecturer – TU Munich</p> <ul style="list-style-type: none"> – Internet Measurements Seminar 2017 – Future Internet Protocols: Design Principles and Deployment 2017 <p>Guest Lecturer – TU Munich</p> <ul style="list-style-type: none"> – Networked Multimedia Systems 2017 <p>Guest Lecturer – Jacobs University Bremen</p> <ul style="list-style-type: none"> – Operating Systems 2014, 2013 – Computer Networks 2014, 2013 – Advanced Computer Networks 2014, 2012 <p>Teaching Assistant – Jacobs University Bremen <i>responsibilities involved preparing and grading assignments</i></p> <ul style="list-style-type: none"> – Internet Measurement and Management Lab 2014 – Computer Networks 2014, 2013, 2011 	

	– Software Engineering Lab	2012
	– Algorithms and Data Structures	2011
MENTORING	Doctoral Students	
	– Ermias Walelgne. <i>Measuring Factors affecting Latency in Cellular Networks</i>	2017
	– Alemnew Sheferaw Asrese. <i>Modeling Web QoS and QoE</i>	2017
	Master Students	
	– Trinh Viet Doan. <i>Where are the Google Global Caches?</i>	2017
	– Steffie Jacob Eravuchira. <i>Measuring Webpage Similarity from Dual-Stacked Hosts</i>	2015
	– Corneliu-Claudiu Prodescu. <i>IPFIX support for NFQL</i>	2013
	Bachelor Students	
	– Ozan Kaya. <i>Comparison of IPv4 and IPv6 Geolocation Accuracy</i>	2017
	– Otar Bichiashvil. <i>Large-scale TCP throughput performance measurement over IPv4 and IPv6</i>	2015
	– Vlad Victor Ungureanu. <i>LMAP Protocol Implementation</i>	2015
	– Durim Morina. <i>A front-end parser for NFQL</i>	2013
	– Mjellma Berisha. <i>NETCONF over TLS implementation</i>	2013
PC SERVICE	Technical Program Committee:	
	– IEEE/IFIP Network Operations and Management Symposium (NOMS)	2018
	– IFIP Networking	2017
	– IFIP/IEEE International Symposium on Integrated Network Management (IM)	2017
	Shadow Technical Program Committee:	
	– Conference on Network and Service Management (CNSM)	2016
	– Conference on emerging Networking EXperiments and Technologies (CoNEXT)	2015
	External Reviewer:	
	– IEEE Transactions on Network and Service Management (TNSM)	2017 – 2016
	– IEEE Communications Magazine (Network & Service Management Series)	2017 – 2014
	– IEEE Communications Magazine (Network Testing & Analytics Series)	2017
	– ACM Transactions on Internet Technology (TOIT)	2017
	– IFIP Traffic Measurement and Analysis Conference (TMA)	2017
	– ACM Multimedia Conference (ACM-MM)	2017
	– ACM SIGCOMM Workshop on Network & OS Support for Digital Audio & Video (NOSSDAV)	2017
	– ACM SIGCOMM Computer Communication Review (CCR)	2016
	– IEEE Communications Magazine (Feature Topic: Advances in Networking Software)	2016
	– IEEE Communications Magazine (Standards Supplement Series)	2016
	– Springer Journal of Network and Systems Management (JNSM)	2016, 2014
	– IEEE Communications Letters	2016
	– Wiley International Journal of Network Management (IJNM)	2016
	– IEEE Conference on Network and Service Management (CNSM)	2015
	– IFIP/IEEE International Symposium on Integrated Network Management (IM)	2015, 2013
	– Conference on Autonomous Infrastructure, Management and Security (AIMS)	2014, 2013
	– IFIP Networking Conference	2014
	– IEEE/IFIP Network Operations and Management Symposium (NOMS)	2014
	JOURNAL PUBLICATIONS	<u>Vaibhav Bajpai, Saba Ahsan, Jürgen Schönwälder, Jörg Ott</u> Measuring YouTube over IPv6 ACM Computer Communication Review (CCR), XXX 2017 [ISI Impact: 3.81]
<u>Vaibhav Bajpai, Steffie Jacob Eravuchira, Jürgen Schönwälder</u> Dissecting Last-mile Latency Characteristics ACM Computer Communication Review (CCR), XXX 2017 [ISI Impact: 3.81]		
<u>Vaibhav Bajpai, Jürgen Schönwälder</u> Network Flow Query Language – Design, Implementation, Performance and Applications		

IEEE Transactions on Network and Service Management (TNSM), March 2017 [ISI Impact: 1.29]
<http://dx.doi.org/10.1109/TNSM.2016.2633511>.

Vaibhav Bajpai, Steffie Jacob Eravuchira, Jürgen Schönwälder
Lessons Learned from using the RIPE Atlas Platform for Measurement Research
ACM Computer Communication Review (CCR Editorial), July 2015 [ISI Impact: 3.81]
<http://dx.doi.org/10.1145/2805789.2805796>

Vaibhav Bajpai, Jürgen Schönwälder
A Survey on Internet Performance Measurement Platforms and Related Standardization Efforts.
IEEE Communications Surveys & Tutorials (COMST), April 2015: [ISI Impact: 9.22]
<http://dx.doi.org/10.1109/COMST.2015.2418435>

CONFERENCE
PUBLICATIONS

Vaibhav Bajpai, Jürgen Schönwälder
Understanding the Impact of Network Infrastructure Changes Using Large-Scale Measurement Platforms
Symposium on Integrated Network Management (IM) Dissertation Session, May 2017
[Best Dissertaton Digest Award]

Vaibhav Bajpai, Steffie Jacob Eravuchira, Jürgen Schönwälder, Robert Kisteleki, Emile Aben
Vantage Point Selection for IPv6 Measurements: Benefits and Limitations of RIPE Atlas Tags
Symposium on Integrated Network Management (IM), May 2017 [28.6%, 44/154]

Steffie Jacob Eravuchira, Vaibhav Bajpai, Jürgen Schönwälder, Sam Crawford
Measuring Web Similarity from Dual-stacked Hosts
Conference on Network and Service Management (CNSM), October 2016 [27.6%, 32/116]
<https://doi.org/10.1109/CNSM.2016.7818415>

Vaibhav Bajpai, Jürgen Schönwälder
IPv4 versus IPv6 - Who connects faster?
IFIP Networking Conference, May 2015 [23.2%, 47/202]
<http://dx.doi.org/10.1109/IFIPNetworking.2015.7145323>

Saba Ahsan, Vaibhav Bajpai, Jörg Ott, Jürgen Schönwälder
Measuring YouTube from Dual-Stacked Hosts
Passive and Active Measurement Conference (PAM), March 2015 [27%, 27/100].
Workshop on Research and Applications of Internet Measurements (RAIM), October 2015.
http://dx.doi.org/10.1007/978-3-319-15509-8_19

Vaibhav Bajpai, Johannes Schauer, Jürgen Schönwälder
NFQL: A Tool for Querying Network Flow Records,
International Symposium on Integrated Network Management (IM), May 2013
http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=6573045

Vaibhav Bajpai et al.
Design and Prototype Implementation of the WattsApp Telemetry Platform,
International Conference on Internet of Things (iThings), November 2012
<http://dx.doi.org/10.1109/GreenCom.2012.21>

Vaibhav Bajpai, Vladislav Perelman
A Cross-Platform Open Source 3D Object Reconstruction System using a Laser Line Projector
IEEE Germany Student Conference (GSC), November 2012.

Vaibhav Bajpai, et al.
Flow-based Identification of Failures Caused by IPv6 Transition Mechanisms
Autonomous Infrastructure, Management & Security (AIMS), June 2012 [43.5%, 10/23]
http://dx.doi.org/10.1007/978-3-642-30633-4_19

IETF RFCs

Jürgen Schönwälder, Vaibhav Bajpai
A YANG Data Model for LMAP Measurement Agents
IETF RFC 8194, XXX 2017

<http://tools.ietf.org/html/draft-ietf-lmap-yang-12>

WORKSHOP
PUBLICATIONS

Vaibhav Bajpai, Mirja Kühlewind, Jörg Ott, Jürgen Schönwälder, Anna Sperotto, Brian Trammell
Challenges with Reproducibility
ACM SIGCOMM 2017 Reproducibility Workshop, August 2017.

Vaibhav Bajpai, Jürgen Schönwälder
Measuring the Effects of Happy Eyeballs
Applied Networking Research Workshop (ANRW), July 2016. [30%, 9/30]
<http://dx.doi.org/10.1145/2959424.2959429>

Vaibhav Bajpai, Jürgen Schönwälder
Understanding the Impact of Network Infrastructure Changes using Large-Scale Measurement Platforms
Autonomous Infrastructure, Management & Security (AIMS), June 2013. [50%, 7/14]
http://dx.doi.org/10.1007/978-3-642-38998-6_5

THESIS

Vaibhav Bajpai
Understanding the Impact of Network Infrastructure Changes using
Large-Scale Measurement Platforms
PhD Thesis, Jacobs University Bremen, August 2016
<http://nbn-resolving.de/urn:nbn:de:gbv:579-opus-1005861>

Vaibhav Bajpai
Network Flow Query Language
Masters Thesis, Jacobs University Bremen, August 2012
<http://cnds.eecs.jacobs-university.de/archive/msc-2012-vbajpai.pdf>

EVENT REPORTS

Vaibhav Bajpai, Arthur W. Berger, Philip Eardley, Jörg Ott, Jürgen Schönwälder
Global Measurements: Practice and Experience (Report on Dagstuhl Seminar #16012)
ACM Computer Communication Review (CCR), April 2016 [ISI Impact: 3.81]
<http://dx.doi.org/10.1145/2935634.2935641>
Dagstuhl Reports, Volume 6, Issue 1, May 2016
<http://dx.doi.org/10.4230/DagRep.6.1.15>

Vaibhav Bajpai, Jürgen Schönwälder
A Report on the 1st NMRG Workshop on Large Scale Network Measurements
Journal of Network and Systems Management (JNSM), September 2014 [ISI Impact: 1.08]
<http://dx.doi.org/10.1007/s10922-014-9328-2>

INVITED ARTICLES

Vaibhav Bajpai
Evaluating the Effectiveness of Happy Eyeballs
RIPE Labs Article, June 2013.
<https://goo.gl/1mERyV>

POSTERS

Vaibhav Bajpai, Radek Krejčí
Managing SamKnows Probes using NETCONF
IEEE/IFIP Network Operations and Management Symposium (NOMS), May 2014
<http://dx.doi.org/10.1109/NOMS.2014.6838279>

Vaibhav Bajpai, Jürgen Schönwälder
NETCONF Interoperability Lab
IEEE/IFIP Network Operations and Management Symposium (NOMS), May 2014
<http://dx.doi.org/10.1109/NOMS.2014.6838278>

Vaibhav Bajpai, Jürgen Schönwälder
Measuring TCP Connection Establishment Times of Dual-Stacked Web Services
Conference on Network and Service Management (CNSM), October 2013
<http://dx.doi.org/10.1109/CNSM.2013.6727822>

- INTERNET DRAFTS
- Jürgen Schönwälder, Vaibhav Bajpai
Using RESTCONF with LMAP Measurement Agents
IETF Internet Draft (I-D), June 2017 [**Working Group Document**]
<http://tools.ietf.org/html/draft-ietf-lmap-restconf-04>
- Jürgen Schönwälder, Vaibhav Bajpai
A YANG Data Model for LMAP Measurement Agents
IETF Internet Draft (I-D), April 2017 [**Working Group Document**]
<http://tools.ietf.org/html/draft-ietf-lmap-yang-12>
- Marcelo Bagnulo, Trevor Burbridge, Sam Crawford, Jürgen Schönwälder, Vaibhav Bajpai
Large Measurement Platform Protocol
IETF Internet Draft (I-D), September 2014 [**Expired Document**]
<http://tools.ietf.org/html/draft-bagnulo-lmap-http-03>
- Vaibhav Bajpai, Jürgen Schönwälder
Measuring the Effects of Happy Eyeballs
IETF Internet Draft (I-D), July 2013 [**Expired Document**]
<http://tools.ietf.org/html/draft-bajpai-happy-01>
- INVITED TALKS
- Vaibhav Bajpai
Measuring IPv6 Performance
Munich Internet Research Retreat, Raitenhaslach, Nov 2016
<http://vaibhavbajpai.com/documents/talks/v6-mir-raitenhaslach-slides.pdf>
- Vaibhav Bajpai
Understanding the Impact of Network Infrastructure Changes using
Large-scale Measurement Platforms.
TU Munich Doctoral Seminar, Raitenhaslach, Oct 2016
<http://vaibhavbajpai.com/documents/talks/tum-raitenhaslach-slides.pdf>
- TALKS
- Vaibhav Bajpai, Jürgen Schönwälder
Measuring the Effects of Happy Eyeballs
RIPE 73 IPv6 Working Group, Madrid, Oct 2016
<https://ripe73.ripe.net/archives/video/1467>
- Vaibhav Bajpai, Steffie Jacob Eravuchira, Jürgen Schönwälder, Sam Crawford
Measuring Webpage Similarity from Dual-Stacked Hosts
RIPE 72 Plenary, Copenhagen, May 2016
<https://ripe72.ripe.net/archives/video/126>
- Vaibhav Bajpai, Steffie Jacob Eravuchira, Jürgen Schönwälder, Robert Kisteleki, Emile Aben
Vantage Point Selection for IPv6 Measurements: Benefits and Limitations of RIPE Atlas Tags
MAT Working Group Meeting at RIPE 72, Copenhagen, May 2016
<https://ripe72.ripe.net/archives/video/167>
- Vaibhav Bajpai
Measuring IPv6 Performance
DE-CIX, Frankfurt, April 2016.
<http://vaibhavbajpai.com/documents/talks/v6-performance-decix-2016.pdf>
- Marcelo Bagnulo, Trevor Burbridge, Sam Crawford, Jürgen Schönwälder, Vaibhav Bajpai
Large Measurement Platform Protocol
LMAP Working Group Meeting at IETF 91, Honolulu, November 2014.
<http://www.ietf.org/proceedings/91/slides/slides-91-lmap-8.pdf>
- Steffie Jacob Eravuchira, Vaibhav Bajpai, Jürgen Schönwälder
Measurement Research within the Python3 Ecosystem
MAT Working Group Meeting at RIPE 69, London, November 2014
<https://ripe69.ripe.net/archives/video/10125>

Vaibhav Bajpai, Steffie Jacob Eravuchira, Jürgen Schönwälder
Lessons Learned From Using the RIPE Atlas Platform for Measurement Research
MAT Working Group Meeting at RIPE 68, Warsaw, May 2014.
<https://ripe68.ripe.net/archives/video/240>

Vaibhav Bajpai, Jürgen Schönwälder
Measuring TCP Connection Establishment Times of Dual-Stacked Web Services
IRTF NMRG Workshop on Large-Scale Network Measurements at CNSM 2013, Zürich, October 2013.
<http://goo.gl/3ACsAA>

Vaibhav Bajpai, Johannes Schauer, Corneliu Claudiu Prodescu, Jürgen Schönwälder
NFQL: A Tool for Querying Network Flow Records
IRTF NMRG Workshop on NetFlow/IPFIX at IETF 87, Berlin, July 2013
<http://www.ietf.org/proceedings/87/slides/slides-87-nmrg-0.pdf>

Vaibhav Bajpai, Jürgen Schönwälder
Measuring the Effects of Happy Eyeballs
v6ops Working Group Meeting at IETF 87, Berlin, July 2013
<http://www.ietf.org/proceedings/87/slides/slides-87-v6ops-8.pdf>

Vaibhav Bajpai, Jürgen Schönwälder
Measuring the Effectiveness of Happy Eyeballs
IPv6 Working Group Meeting at RIPE 66, Dublin, May 2013.
<https://ripe66.ripe.net/archives/video/1208>

TUTORIALS

Vaibhav Bajpai, Nikolay Melnikov
Large-Scale Measurement Platforms
Autonomous Infrastructure, Management & Security (AIMS), Barcelona, June 2013.
<http://cnds.eecs.jacobs-university.de/tutorials>

INVITED SEMINARS

Coordinator:

– MIR. *Munich Internet Research Retreat* Ratenhaslach, 2017
– Dagstuhl Seminar (#16012). *Global Measurement Practice and Experience* Wadern, 2016

Participant:

– MIR. *Munich Internet Research Retreat* Ratenhaslach, 2016
– CM Doctoral Retreat. *TU Munich Connected Mobility Doctoral Retreat* Ratenhaslach, 2016
– Leone/IETF/BBF Workshop. *Large-scale Measurements* Dublin, 2014
– Dagstuhl Seminar (#13472). *Global Measurement Framework* Wadern, 2013

OPEN SOURCE CONTRIBUTIONS

– [simweb](#), A tool to measure similarity of webpages delivered over IPv4 and IPv6
– [nfql](#), A C implementation of the network flow query language
– [happy](#), A happy eyeballs [RFC 6555] probing tool
– [ncclient](#), A Python library for NETCONF clients
– [libnetconf](#), A NETCONF library in C intended for building NETCONF clients and servers.
– [scamper](#), A scalable and extensible packet prober for active measurement of the Internet
– [mtr](#), A network diagnostic tool
– [homebrew-versions](#), Versioned formulae for the Homebrew package manager
– [slam6d](#), A toolkit with algorithms and methods for processing 3D point clouds
– [petascope](#), A reference implementation of the OGC WCS standard suite

HONORS

– RIPE RACI fellowship to attend RIPE 66 2013
– Graduated with a 1.0 grade on the masters thesis, 1.64 overall GPA in masters 2012
– Graduated as a top student of the class (80.84%) in bachelors 2009
– Ranked 9th amongst bachelor freshmen from 600 colleges affiliated with university 2005
– Graduated as a top student of the class (3rd in city) in XII (93.4%) 2005
– Merit certificate for 100% marks in Computer Science in XII 2005

- Graduated as a top student of the class in X (86.0%) 2003
- Merit certificate for 100% marks in Science in X (felicitated by the State Govt) 2003
- All-India merit position 35th in Junior Mathematics Olympiad 2002

ACTIVE PRESENCE

Memberships

- IEEE Student Membership
- IEEE Communications Society Membership
- Internet Society Membership
- SIGCOMM Membership
- IFIP TC6 Working Group 6.6 Membership

LANGUAGES

- English fluent
- Hindi native
- German A1 level

REFERENCES

Jürgen Schönwälder
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