

Vaibhav Bajpai

CONTACT INFORMATION

Computer Networks and Distributed Systems
Jacobs University Bremen

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EDUCATION

Jacobs University Bremen, Germany
Doctor of Philosophy, Computer Science

Sep 2012—Present

- *Dissertation title: Understanding the Impact of Network Infrastructure Changes using Large-Scale Measurement Platforms*
- *Dissertation work under the guidance of Prof. Dr. Jürgen Schönwälder*

Jacobs University Bremen, Germany
Master of Science, Computer Science

Sep 2010—Aug 2012

- *Masters Thesis: A complete system integration of the network flow query language, under the guidance of Prof. Dr. Jürgen Schönwälder*
- *Graduated with a 1.0 grade on the masters thesis, 1.64 overall GPA*
- *Merit-based tuition scholarship and stipend for the entire duration*

PROFESSIONAL EXPERIENCE

Jacobs University Bremen, Germany
Research Associate

Dec 2012—Present

- *Leone FP7 EU Project: From Global Measurements to Local Management*
- *Flamingo FP7 EU Project: Management of the Future Internet*

Jacobs University Bremen, Germany
Student & Teaching Assistant

Feb 2011—Present

- *Computer Networks*, Fall 2014
- *Internet Measurement and Management Lab*, Spring 2014
- *Computer Networks*, Fall 2013
- *Implementation of the Network Flow Query Language (NFQL)*, Summer 2012
- *Software Engineering Lab*, Spring 2012
- *Networks and Protocols & Algorithms and Data Structures*, Fall 2011
- *Machine Vision Project*, Spring 2011

PUBLICATIONS

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

Vaibhav Bajpai, Radek Krejčí: Managing SamKnows Probes using NETCONF, *14th IEEE/IFIP Network Operations and Management Symposium (NOMS 2014)*, Krakow, May 2014. <http://dx.doi.org/10.1109/NOMS.2014.6838279>

Vaibhav Bajpai, Jürgen Schönwälder: NETCONF Interoperability Lab, *14th IEEE/IFIP Network Operations and Management Symposium (NOMS 2014)*, Krakow, 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, *9th International Conference on Network and Service Management (CNSM)*, Zürich, October 2013. <http://dx.doi.org/10.1109/CNSM.2013.6727822>

Vaibhav Bajpai, Jürgen Schönwälder: Understanding the Impact of Network Infrastructure Changes using Large-Scale Measurement Platforms, *7th International Conference on Autonomous Infrastructure, Management and Security (AIMS)*, Barcelona, June 2013. http://dx.doi.org/10.1007/978-3-642-38998-6_5

	<p>Vaibhav Bajpai, Johannes Schauer, Jürgen Schönwälder: NFQL: A Tool for Querying Network Flow Records, <i>13th IEEE International Symposium on Integrated Network Management (IM)</i>, Ghent, May 2013. http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=6573045</p> <p>Vaibhav Bajpai, Vitali Bashko, Catalin David, Siarhei Kuryla, Vladislav Perelman, Johannes Schauer, Nikolay Melnikov, Anuj Sehgal, Jürgen Schönwälder: Design and Prototype Implementation of the WattsApp Telemetry Platform, <i>IEEE International Conference on Internet of Things (iThings)</i>, Besançon, November 2012. http://dx.doi.org/10.1109/GreenCom.2012.21</p> <p>Vaibhav Bajpai and Vladislav Perelman: A Cross-Platform Open Source 3D Object Reconstruction System using a Laser Line Projector, <i>3rd IEEE Germany Student Conference (GSC)</i>, Passau, November 2012.</p> <p>Vaibhav Bajpai, Nikolay Melnikov, Anuj Sehgal, Jürgen Schönwälder: Flow-based Identification of Failures Caused by IPv6 Transition Mechanisms, <i>6th Conference on Autonomous Infrastructure, Management and Security (AIMS)</i> Luxembourg, June 2012. http://dx.doi.org/10.1007/978-3-642-30633-4_19</p>	
INTERNET DRAFTS	<p>Jürgen Schönwälder and Vaibhav Bajpai, A YANG Data Model for LMAP Measurement Agents, Internet Draft, September 2014. http://tools.ietf.org/html/draft-schoenw-lmap-yang-01</p> <p>Marcelo Bagnulo, Trevor Burbridge, Sam Crawford, Jürgen Schönwälder and Vaibhav Bajpai, Large MeAsurement Platform Protocol: draft-bagnulo-lmap-http, Internet Draft, June 2014. http://tools.ietf.org/html/draft-bagnulo-lmap-http-02</p> <p>Vaibhav Bajpai and Jürgen Schönwälder, Measuring the Effects of Happy Eyeballs: draft-bajpai-happy. Internet Draft, July 2013. http://tools.ietf.org/html/draft-bajpai-happy-01</p>	
TECHNICAL ARTICLES	<p>Evaluating the Effectiveness of Happy Eyeballs, <i>RIPE Labs Article</i>, June 2013. https://labs.ripe.net/Members/vaibhav_bajpai/evaluating-the-effectiveness-of-happy-eyeballs</p>	
PAST PROFESSIONAL EXPERIENCES AND EDUCATION	<p>Infosys Technologies Ltd, Bangalore, India Jul 2009—Jun 2010</p> <p>Systems Engineer</p> <ul style="list-style-type: none"> — Certified, Infosys Mainframe Foundation Developer, PR — 101 — Felicitated as the top entry-level candidate after industrial training (GPA 5/5) <p>Uttar Pradesh Technical University, India Aug 2005—Jun 2009</p> <p>Bachelor of Technology, Computer Science and Engineering</p> <ul style="list-style-type: none"> — Bachelors Project: Dexter, A social experience on top of google search results, under the guidance of Prof. Sanjeev Pippal — Graduated as the top student of the class (80.84%) — Merit position 9th amongst all freshmen encompassing 600 affiliated colleges <p>Kendriya Vidyalaya Aliganj, India Mar 2003—Mar 2005</p> <p>Central Board of Secondary Education</p> <ul style="list-style-type: none"> — Graduated as the top student of the class (3rd in city) in XII (93.4%) — Merit certificate for 100% marks in Computer Science in XII — Graduated as the top student of the class in X (86.0%) — Merit certificate for 100% marks in Science in X (felicitated by the State Govt) — All-India merit position 35th in Junior Mathematics Olympiad, 2002. 	
PHD PROPOSAL	<p>Understanding the Impact of Network Infrastructure Changes using Large-Scale Measurement Platforms, PhD Proposal, September 2013.</p>	
MASTERS THESIS	<p>F(v2): A Complete System Integration of the Network Flow Query Language, Masters Thesis, August 2012 http://cnds.eecs.jacobs-university.de/archive/msc-2012-vbajpai.pdf</p>	

TALKS	<p>Lessons Learned From Using the RIPE Atlas Platform for Measurement Research, <i>MAT Working Group Meeting at RIPE 68</i>, Warsaw, May 2014. https://ripe68.ripe.net/archives/video/240</p> <p>Measuring TCP Connection Establishment Times of Dual-Stacked Web Services, <i>Internet Research Task Force (IRTF) Network Management Research Group (NMRG) Workshop on Large-Scale Network Measurements at CNSM 2013</i>, Zürich, October 2013. http://www.ietf.org/proceedings/interim/2013/10/14/nmrg/slides/slides-interim-2013-nmrg-1-10.pdf</p> <p>NFQL: A Tool for Querying Network Flow Records, <i>Internet Research Task Force (IRTF) Network Management Research Group (NMRG) Workshop on NetFlow/IPFIX at Internet Engineering Task Force (IETF) 87</i>, Berlin, July 2013. http://www.ietf.org/proceedings/87/slides/slides-87-nmrg-0.pdf</p> <p>Measuring the Effects of Happy Eyeballs, <i>v6ops Working Group Meeting at Internet Engineering Task Force (IETF) 87</i>, Berlin, July 2013. http://www.ietf.org/proceedings/87/slides/slides-87-v6ops-8.pdf</p> <p>Measuring the Effectiveness of Happy Eyeballs, <i>IPv6 Working Group Meeting at RIPE 66</i>, Dublin, May 2013. https://ripe66.ripe.net/archives/video/1208</p>
SEMINARS	<p>Global Measurement Framework (13472), <i>A 3-day invitation-only Dagstuhl seminar on Initiating a Coherent Global Measurement Framework for the Internet</i>, LZI Schloss Dagstuhl, Wadern, November 2013. http://www.dagstuhl.de/13472</p>
TUTORIALS	<p>Large-Scale Measurement Platforms, <i>7th IFIP International Autonomous Infrastructure, Management and Security Conference on Dependable Networks and Services (AIMS)</i>, Barcelona, June 2013. http://cnds.eecs.jacobs-university.de/tutorials</p>
OPEN SOURCE	<p>Author</p> <ul style="list-style-type: none"> — nfql, A C implementation of the network flow query language <p>Contributor</p> <ul style="list-style-type: none"> — 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. — 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.
ACTIVITIES	<p>Course Lectures</p> <ul style="list-style-type: none"> — Memory Management, <i>Operating Systems</i>, March, 2014 — Large-scale Network Measurements, <i>Advanced Computer Networks</i>, March, 2014 — Network Address Translators (NAT), <i>Computer Networks</i>, November, 2013 — Internet Protocol (IP), <i>Computer Networks</i>, September, 2013 — Sockets API, <i>Computer Networks</i>, September, 2013 — Semaphore Patterns & Memory Management, <i>Operating Systems</i>, February, 2013 — NFQL & ncclient, <i>Advanced Networking</i>, October, 2012 <p>Reviewer</p> <ul style="list-style-type: none"> — Springer Journal of Network and Systems Management (JNSM): 2014 — Conference on Autonomous Infrastructure, Management and Security (AIMS): 2014, 2013. — IEEE Communications Magazine: 2014 — IFIP Networking Conference: 2014 — IEEE/IFIP Network Operations and Management Symposium (NOMS): 2014

- IFIP/IEEE International Symposium on Integrated Network Management (IM): 2013

Project Supervision

- LMAP HTTP protocol implementation, *Bachelors Project*
- RIPE atlas measurements, *Masters Project*
- IPFIX support for NFQL, *Masters Project*
- A front-end parser implementation for NFQL, *Bachelors Thesis*
- NETCONF over TLS implementation, *Bachelors Project*

Memberships

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