

Vaibhav Bajpai

CONTACT INFORMATION Computer Networks and Distributed Systems v.bajpai@jacobs-university.de
Jacobs University Bremen <http://www.vaibhavbajpai.com>

EDUCATION **Jacobs University Bremen**, Germany Sep 2012—Present
Doctor of Philosophy, Computer Science

- *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 Sep 2010—Aug 2012
Master of Science, Computer Science

- *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 Dec 2012—Present
Research Associate

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

Jacobs University Bremen, Germany Feb 2011—Present
Student & Teaching Assistant

- *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, Radek Krejčí: Managing SamKnows Probes using NETCONF, *14th IEEE/IFIP Network Operations and Management Symposium (NOMS 2014)*, Krakow, May 2014.

Vaibhav Bajpai, Jürgen Schönwälder: NETCONF Interoperability Lab, *14th IEEE/IFIP Network Operations and Management Symposium (NOMS 2014)*, Krakow, May 2014.

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

Vaibhav Bajpai, Johannes Schauer, Jürgen Schönwälder: NFQL: A Tool for Querying Network Flow Records, *13th IEEE International Symposium on Integrated Network Management (IM)*, Ghent, May 2013. http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=6573045

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, *IEEE International Conference on Internet of Things (iThings)*, Besançon, November 2012. <http://dx.doi.org/10.1109/GreenCom.2012.21>

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

Vaibhav Bajpai, Nikolay Melnikov, Anuj Sehgal, Jürgen Schönwälder: Flow-based Identification of Failures Caused by IPv6 Transition Mechanisms, *6th Conference on Autonomous Infrastructure, Management and Security (AIMS)* Luxembourg, June 2012. http://dx.doi.org/10.1007/978-3-642-30633-4_19

INTERNET DRAFTS Marcelo Bagnulo, Trevor Burbridge, Sam Crawford, Jürgen Schönwälder and Vaibhav Bajpai, Large Measurement Platform Protocol: draft-bagnulo-lmap-http, Internet Draft, October 2013. <http://tools.ietf.org/html/draft-bagnulo-lmap-http-01>

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>

TECHNICAL ARTICLES Evaluating the Effectiveness of Happy Eyeballs, *RIPE Labs Article*, June 2013. https://labs.ripe.net/Members/vaibhav_bajpai/evaluating-the-effectiveness-of-happy-eyeballs

PAST PROFESSIONAL EXPERIENCES AND EDUCATION **Infosys Technologies Ltd**, Bangalore, India Jul 2009—Jun 2010
Systems Engineer
— *Certified, Infosys Mainframe Foundation Developer*, PR — 101
— *Felicitated as the top entry-level candidate after industrial training (GPA 5/5)*

Uttar Pradesh Technical University, India Aug 2005—Jun 2009
Bachelor of Technology, Computer Science and Engineering
— *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*

Kendriya Vidyalaya Aliganj, India Mar 2003—Mar 2005
Central Board of Secondary Education
— *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 Understanding the Impact of Network Infrastructure Changes using Large-Scale Measurement Platforms, PhD Proposal, September 2013.

MASTERS THESIS 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>

TALKS 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>

Measuring TCP Connection Establishment Times of Dual-Stacked Web Services, *Internet Research Task Force (IRTF) Network Management Research Group (NMRG) Workshop on Large-Scale Network Measurements at CNSM 2013*, Zürich, October 2013. <http://www.ietf.org/proceedings/interim/2013/10/14/nmrg/slides/slides-interim-2013-nmrg-1-10.pdf>

NFQL: A Tool for Querying Network Flow Records, *Internet Research Task Force (IRTF) Network Management Research Group (NMRG) Workshop on NetFlow/IPFIX at Internet Engineering Task Force (IETF) 87*, Berlin, July 2013. <http://www.ietf.org/proceedings/87/slides/slides-87-nmrg-0.pdf>

Measuring the Effects of Happy Eyeballs, *v6ops Working Group Meeting at Internet Engineering Task Force (IETF) 87*, Berlin, July 2013. <http://www.ietf.org/proceedings/87/slides/slides-87-v6ops-8.pdf>

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

SEMINARS

Global Measurement Framework (13472), *A 3-day invitation-only Dagstuhl seminar on Initiating a Coherent Global Measurement Framework for the Internet*, LZI Schloss Dagstuhl, Wadern, November 2013. <http://www.dagstuhl.de/13472>

TUTORIALS

Large-Scale Measurement Platforms, *7th IFIP International Autonomous Infrastructure, Management and Security Conference on Dependable Networks and Services (AIMS)*, Barcelona, June 2013. <http://cnds.eecs.jacobs-university.de/tutorials>

OPEN SOURCE

Author

- [nfql](#), A C implementation of the network flow query language

Contributor

- [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

Course Lectures

- Memory Management, *Operating Systems*, March, 2014
- Large-scale Network Measurements, *Advanced Computer Networks*, March, 2014
- Network Address Translators (NAT), *Computer Networks*, November, 2013
- Internet Protocol (IP), *Computer Networks*, September, 2013
- Sockets API, *Computer Networks*, September, 2013
- [Semaphore Patterns](#) & [Memory Management](#), *Operating Systems*, February, 2013
- [NFQL](#) & [ncclient](#), *Advanced Networking*, October, 2012

Reviewer

- 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