

Dr. Ihsan Ayyub Qazi

- CONTACT INFORMATION** EN605 *Cell: +61414216480*
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Swinburne University of Technology *Webpage: http://caia.swin.edu.au/cv/iqazi*
John Street, Hawthorn, Victoria 3122, Australia
- RESEARCH INTERESTS** My research interests are in computer networking and distributed systems and span green networking, future internet design, wireless systems and performance modeling.
- EDUCATION** **Ph.D. in Computer Science, August 2010**
University of Pittsburgh, Pittsburgh, Pennsylvania, USA
 ◇ Dissertation title: “*An Efficient Framework of Congestion Control for Next-Generation Networks*”
 ◇ Committee: Craig Partridge, Daniel Mosse, Lachlan Andrew, Rami Melhem, Taieb Znati
- BSc (Honors), Double Major in Computer Science and Mathematics, June 2005**
Lahore University of Management Sciences (LUMS), Lahore, Pakistan
- EMPLOYMENT** **Post-doctoral Research Fellow (September 2010 - Present)**
Centre for Advanced Internet Architectures (CAIA)
Swinburne University of Technology, Melbourne, Australia
- Network Research Intern (June 2009 - September 2009)**
Global Environment for Network Innovations (GENI) Unit, BBN Technologies, Cambridge, MA, USA
 ◇ Advisors: Aaron Falk and Christopher Small
 ◇ *Participated in the research, development, and testing of GENI, which is a virtual laboratory for exploring future internets at scale (see www.geni.net).*
- Graduate Student Researcher and Instructor (September 2005 - August 2010)**
Department of Computer Science, University of Pittsburgh, Pennsylvania, USA
- TEACHING EXPERIENCE** **University of Pittsburgh**
 ◇ **Course Instructor** (Aug 2006 - Dec 2006 & May 2006 - Aug 2006)
 ◇ CS 0131 *Softwares for Personal Computing* (taught in **two** semesters)
- ◇ **Teaching Assistant** (Aug 2005 - Apr 2006 & Jan 2007 - Apr 2007)
 ◇ CS 2520 *Wide Area Networks* (graduate-level)
 ◇ CS 0007 *Introduction to Computer Programming*
 ◇ CS 0445 *Data Structures and Algorithms* (taught in **two** semesters)
- LUMS**
 ◇ **Teaching Assistant** (Winter & Spring 2004)
 ◇ CS 472 *Advanced Networks* (graduate-level)
 ◇ CS 471 *Computer Networks*

Ph.D. Thesis

- 1) Ihsan Ayyub Qazi. “**An Efficient Framework of Congestion Control for Next-Generation Networks**”. *Doctoral Dissertation*, University of Pittsburgh, Pittsburgh, PA USA, August 2010.

Journal

- 2) Ihsan Ayyub Qazi, Lachlan Andrew, and Taieb Znati. “**Congestion control with multi-packet feedback**” (under submission to *IEEE/ACM Transactions on Networking*).
- 3) Ihsan Ayyub Qazi and Taieb Znati. “**On the Design of Load Factor based Congestion Control Protocols for Next-Generation Networks**”. *Computer Networks*, vol. 55, no. 1, pp. 45-60, 2011.

Conferences/Workshops

- 4) Ihsan Ayyub Qazi, Taieb Znati, and Daniel Mosse. “**Enabling Router-Assisted Transport Protocols over 802.11 Wireless Networks**” (under submission).
- 5) Ihsan Ayyub Qazi, Daniel Mosse and Taieb Znati. “**Addressing Starvation in Multi-hop Wireless Mesh Networks without Explicit Coordination**” (under submission).
- 6) Ihsan Ayyub Qazi and Rami Melhem. “**Using GENI to Evaluate Congestion Control Protocols for Next Generation Networks**”. *GENI Experimenters Workshop (GEW)*, Princeton University, NJ, June 29-30 2010.
- 7) Ihsan Ayyub Qazi, Lachlan Andrew and Taieb Znati. “**Incremental deployment of new ECN-compatible congestion control**”. in *Proceedings of PFLDNeT*, Tokyo, Japan, May 2009.
- 8) Ihsan Ayyub Qazi, Lachlan Andrew and Taieb Znati. “**Congestion Control using Efficient Explicit Feedback**”. in *Proceedings of IEEE INFOCOM 2009*, Rio de Janeiro, Brazil, April 2009 (*acceptance rate = 19%*).
- 9) Ihsan Ayyub Qazi, Lachlan Andrew and Taieb Znati. “**Two bits are enough**”. in *Proceedings of ACM SIGCOMM 2008*, Seattle, WA, August 2008 (*Extended Abstract + Poster*).
- 10) Ihsan Ayyub Qazi, Taieb Znati. “**On the Design of Load Factor based Congestion Control Protocols for Next-Generation Networks**”. in *Proceedings of IEEE INFOCOM 2008*, Phoenix, AZ, April 2008 (*acceptance rate = 20%*).

Technical Reports/Other Articles

- 11) Ihsan Ayyub Qazi. “**Designing Experiments using GENI Cluster B**”. *GENI Project Office, BBN Technologies*, Cambridge, MA, August 2009.
- 12) Ihsan Ayyub Qazi and Daniel Mosse. “**Insights into the Design of Congestion Control Protocols for Multi-Hop Wireless Mesh Networks**”. *Tech. Report TR-09-164*, University of Pittsburgh.
- 13) Ihsan Ayyub Qazi and Pratik Gandhi. “**Performance Evaluation of Wireless Network Coding under Practical Settings**”. *Tech. Report TR-07-150*, University of Pittsburgh.
- 14) Ihsan Ayyub Qazi and Taieb Znati. “**Sizing of Router Buffers in the presence of Bi-directional Traffic**”. *Tech. Report TR-07-149*, University of Pittsburgh.

Under Preparation

- 15) Ihsan Ayyub Qazi, Daniel Mosse and Taieb Znati. “**Understanding the Tradeoff between Aggregate Throughput and Fairness in Multi-hop Wireless Mesh Networks in the Presence of Adaptive Bitrate Radios**”. University of Pittsburgh.

HONORS AND AWARDS

- ◇ **Andrew Mellon Predoctoral Fellowship for the year 2009-2010:** One of the two Ph.D. students in the CS department to be awarded this prestigious fellowship. The fellowship provides a monthly stipend and a full tuition scholarship for one year.
- ◇ **Best Graduate Student Research Award 2009:** *For Presenting the Best Student Research Entry Among Computer Science Graduate Students*, University of Pittsburgh (Award: \$500).
- ◇ **Best Poster Award 2009 (faculty choice):** *For Presenting The Best Poster By A Graduate Student At The 9th Annual Computer Science Day 2009*, University of Pittsburgh (Award: \$200).
- ◇ **Outstanding Paper Award at Graduate Expo 2008:** *For Outstanding Presentation And Contribution To The Arts And Sciences At The University of Pittsburgh* (Award: \$300).
- ◇ **Graduate Student Research Award 2008:** *Runner-Up Student Research Entry Among Computer Science Graduate Students*, University of Pittsburgh.
- ◇ **NSF Student Travel Grant:** To attend 3rd Symposium on Networked Systems Design and Implementation (NSDI'06), May 8-10, 2006 San Jose, CA, USA.
- ◇ **Dean's Honors List:** Placed on the list for several quarters at LUMS.
- ◇ **Class Representative:** BSc 2005, LUMS.
- ◇ **Roll of Honor (at the Lahore Grammar School, 2001):** Highest award of the institution given once a year to a student who has shown excellence in academics and co-curricular activities.
- ◇ **Best Student Award for Mathematics, Physics and Chemistry:** Obtained more than 95% marks in all the subjects in the Advanced-Level examinations conducted by Cambridge University, UK, 2001.

SOFTWARE DISTRIBUTION

- ◇ NS-2 Code (*written in C++*) for the Multi-Level Feedback Congestion Control Protocol (MLCP)
- ◇ NS-2 Code (*written in C++*) for the Binary Marking Congestion Control (BMCC) protocol

PROFESSIONAL ACTIVITIES

- ◇ Reviewer for the following Conferences/Journals: **MobiQuitous 2008, INCC 2008, Journal of Communications and Networks, Globecom 2009, RTNS 2009, CICSYN 2009, Elsevier Computer Networks Journal, ACM CCS 2010, IFIP Wireless Days 2010, IEEE Transactions on Vehicular Technology.**
- ◇ Participated in the NSF Future Internet Architectures Summit, 12-15 October 2009, Arlington, VA, USA
- ◇ Attended the Fifth GENI Engineering Conference (GEC) as part of the GENI Project Office (BBN Technologies), 20-23 July 2009, Seattle, WA, USA
- ◇ Participant at the TCP Benchmarking Discussion, Nov 2007, Caltech, CA, USA
- ◇ IEEE, COMSOC, and ACM Member
- ◇ Participated in the Center for Instructional Development and Distance Education's (CIDDE) *Mentoring Student Research Seminar*, May 2008, Pittsburgh, PA, USA

COMPUTER SKILLS

- ◇ C, C++, Java, Perl, Python, Tcl/OTcl, Awk, UNIX shell scripting, Matlab, Unix/Linux, XML, Virtualization Softwares: VirtualBox, VMware.
- ◇ Network simulators: QualNet, ns-2, OPNET, and CSIM.

RELEVANT COURSE WORK

At the University of Pittsburgh (Pitt)
Advanced Topics in Distributed and Real-Time Systems, Wide Area Networks, "Mobile Data, Ad Hoc and Sensor Networks", Graduate Algorithms, Randomized Algorithms, Artificial Intelligence, Computer Architecture.

At the Carnegie Mellon University (CMU)
Performance Modeling and Design of Computer Systems, Networks and Matchings, Graph Theory.

At the Lahore University of Management Sciences (LUMS)
Topics in Internet Research, Distributed Systems, Internetworking with UNIX TCP/IP, Stochastic Processes, Operations Research, Numerical Analysis, Partial Differential Equations,

REFERENCES

1. Dr. Daniel Mosse
Professor and Chair, Department of Computer Science, University of Pittsburgh, PA 15260, USA
Phone: +1 (412) 624 8493
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2. Dr. Craig Partridge (*IEEE Fellow and ACM Fellow*)
Chief Scientist, Internetwork Research Department, BBN Technologies, Cambridge, MA 02138, USA
Phone: +1 (517) 324 3425
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3. Dr. Lachlan L. H. Andrew
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4. Dr. Chip Elliot
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5. Dr. Taieb Znati
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