

Adeel Razi

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EDUCATION

2012 PhD in Electrical Engineering (Thesis submitted Aug 2011 and approved in Jan 2012)
The University of New South Wales (UNSW), Australia.

Thesis title: Sum Rates and User Scheduling for Multi-User MIMO Systems.

Advisors: Jinhong Yuan (UNSW), Iain Collings (CSIRO) and Daniel Ryan (NTNU).

2006 M.Sc. in Communications Engineering

University of Technology Aachen (RWTH), Germany.

Thesis title: Comparison of Frequency- and Time-Domain Equalization for HSDPA.

Advisors: Gerd Ascheid (RWTH), Michael Speth and Herbert Dawid (Infineon Tech. AG).

2002 B.E. in Electrical Engineering

NED University of Engineering & Technology (NEDUET), Pakistan.

Thesis title: Design of Cable Modem Network Architecture.

Rank: 1/140

PUBLICATIONS

Books:

1. **A. Razi**, K. -B. Huang, C. -B, Chae, "Recent Trends in Multi-user MIMO Communications," InTech. To be published in 2012.

Journals:

8. M. O. Mughal, **A. Razi**, J. Kim, "Average Detection Probability with Blind Relay and Selection Combiner in Cooperative Relay Networks", *IEEE Communications Letters*. Submitted April. 2012.

7. M. O. Mughal, **A. Razi**, J. Kim, "Tight Upper Bound on Average Detection Probability in Cognitive Relay Networks with Selection Combiner", *IEEE Wireless Communications Letters*. Submitted March. 2012.

5. **A. Razi**, D. J. Ryan, J. Yuan, I. B. Collings, "Sum Rates for Regularized Vector Perturbation Multi-User MIMO Systems", Physical Communications (PHYCOM). Special Issue on Multiuser MIMO Communications in Interference-Limited Scenarios. Submitted Jan. 2012.

6. G. Geraci, M. Egan, J. Yuan, **A. Razi**, I. B. Collings, "Secrecy Sum-Rates for Multi-User MIMO Regularized Channel Inversion Precoding", *IEEE Trans. Communications*. Submitted Oct. 2011 and revised Mar. 2012

4. **A. Razi**, D. J. Ryan, J. Yuan, I. B. Collings, "Performance of Vector Perturbation Multi-User MIMO Systems over Practical Channels", submitted Aug 2011

3. **A. Razi**, Y. Shao, J. Yuan, "User Scheduling for Multi-antenna Downlink Channels with Limited Feedback", *Trans Emerging Tel Tech*, 23: 3649. doi: 10.1002/ett.1506.

2. **A. Razi**, D. J. Ryan, I. B. Collings, J. Yuan, "Sum Rates, Rate Allocation, and User Scheduling for Multi-user MIMO Vector Perturbation Precoding", *IEEE Trans. Wireless Communications*, vol.9, no.1, pp.356-365, January 2010.

1. H.Q. Huynh, S.I. Husain, J. Yuan, **A. Razi** and D.S. Taubman, "Performance Analysis of Multi-branch Dual-hop Non-regenerative Relay Systems", *Eurasip Journal on Wireless Communications and Networking*, vol. 2010, Article ID 835498, 2010.

Conferences:

1. **A. Razi**, D. J. Ryan, J. Yuan, I. B. Collings, "Sum Rates for Regularized Vector Perturbation Multi-User MIMO Systems", in proceedings of *IEEE ISWCS* 2011.

2. Giovanni Geraci, J. Yuan, **A. Razi**, I. B. Collings, "Secrecy Sum Rates for Regularized Zero-Forcing Multi-User MIMO Systems, in proceedings of *IEEE ISWCS* 2011.

3. **A. Razi**, D. J. Ryan, J. Yuan, I. B. Collings, "Performance of Vector Perturbation Multi-User MIMO Systems over Correlated Channels", in proceedings of *IEEE Wireless Communications and Networking Conference (WCNC)*, Sydney, Australia, April 2010.
4. H.Q. Huynh, S.I. Husain, J. Yuan, **A. Razi** and D.S. Taubman, "Performance Analysis of Multi-branch Non-regenerative Relay Systems", in proceedings of *IEEE Vehicular Technology Conference (VTC)*, Anchorage, USA, Sep 2009.
5. **A. Razi**, D. J. Ryan, I. B. Collings, J. Yuan, "Sum Rates and User Scheduling for Multi-user MIMO Vector Perturbation Precoding", in proceedings of *IEEE Int. Conference on Communications (ICC)*, Dresden, Germany, June 2009. **Won Student Travel Grant from IEEE ComSoc.**
6. **A. Razi**, J. Yuan, "Feedback Reduction Schemes for MIMO Broadcast Channels", in proceedings of *IEEE Int. Symp. on Personal Indoor and Mobile Radio Communications (PIMRC)*, Cannes, France, Sep. 2008. **Won Student Travel Grant from IEEE ComSoc.**
7. U. Waheed, W. Abdullah, **A. Razi**, "Comparison of Time domain and Frequency Domain Equalizers for Indoor Ultra-Wideband Systems" in the proceedings of *IEEE. SIBRICON*, Novosibirsk, Russia, July 2008.

TEACHING and INDUSTRY EXPERIENCE

- **NED University of Engineering & Technology, Pakistan:** (Nov 2011 - till date)
Assistant Professor: I am teaching introductory courses: Digital Signal Processing, Communication Systems, Electronic Devices and Circuits and supervising several undergraduate/graduate theses in the area of wireless communications.
- **Broadcom Corporation, Sydney, Australia** (May 2011 - Oct 2011)
Staff Scientist: I designed PHY algorithms for Wireless LAN (IEEE 802.11n/ac).
- **The University of New South Wales** (Aug 2007- Aug 2011)
Lab demonstrator: I have worked as lab demonstrator for the following courses: Analogue and Digital Communications (EE-3113), Mobile and Satellite Communication Systems (EE-4652) and Network Technologies (EE-3118).
- **Infineon Technologies AG, Germany:** (July 2005 - Mar 2006)
Master's Thesis Research Student: I worked for Master's Thesis on the topic of "Comparison of frequency and time domain equalization for HSDPA". The research was in collaboration with the Institute for Integrated Signal Processing Systems.
- **Delphi Delco Electronics Europe GmbH:** (Aug 2004 - Feb 2005)
Internee and R&D Student Employee: Completed internship in the Restrainted Systems Electronics Department. My asterisk work includes the algorithm development using the MATLAB programming for PODS-C. I also worked in Restrainted Systems Department. My primary work included the algorithm development for PODS-C. I used pattern recognition methods such as Support Vector Machines (SVMs).
- **N.E.D. University of Engineering & Technology, Karachi Pakistan:** (Mar 2002 - Aug 2003)
Associate Lecturer: Department of Electronic Engineering

RESEARCH VISITS and TALKS

- Visited NTNU, Trondheim, Norway for 5 week in Sep/Oct 2010. The research visit was funded by an ACoRN grant of amount AUD 5,500.
- Visited Eurecom and gave a seminar on "Sum Rates, Rate Allocation, and User Scheduling for Multi-user MIMO Vector Perturbation Precoding". June 2009.
- Visited NTNU, Trondheim, Norway for 2 weeks in May/June 2009 and also gave a seminar. May/June 2009.
- Presented paper at the of IEEE Wireless Communications and Networking Conference (WCNC) 2010, Sydney, Australia.
- Presented paper at the IEEE International Conference on Communication (ICC) 2009, Dresden, Germany.
- Presented paper at the IEEE Int. Symp. on Personal Indoor and Mobile Radio Communications (PIMRC) 2008, Cannes, France.

HONORS and DISTINCTIONS

- PhD Thesis at the UNSW was approved with rare distinction that all three outside reviewers of the thesis gave score of 1 on the scale of 1 to 5 (1 being the best). The PhD degree was directly awarded without requiring any corrections.
- Recipient of **Engineering Research Excellence Award** of AUD 10,000 per anum at UNSW. It is to recognize research students with University Medal.
- Recipient of **Australian Postgraduate Award (APA)** for PhD studies at UNSW. (March 2010 - till end of PhD).
- Awarded a top-up scholarship from Common Wealth Scientific and Industrial Research Organization (CSIRO) for PhD studies at UNSW. (April 2008 - till end of PhD).
- Recipient of highly competitive **University International Postgraduate Award (UIPA)** for PhD studies at UNSW. (August 2007 - March 2010).
- Best Teacher Award of Electronic Engineering Department of NED University of Engineering & Tech for the year 2007.
- Best Advisor Award for the Final Year undergraduate students of Electronic Engineering Department of NED University of Engineering & Tech for the year 2006.
- 2 weeks intensive Analogue IC design course tutored by Prof. Asad Abidi from University of California. Los Angeles (UCLA) at School of Science and Engineering (SSE) of LUMS, Pakistan.
- Recipient of merit scholarship from NED University to pursue MSc in Communications Engineering at RWTH Aachen that covers all living expenses up to two years.
- Best Teacher Award of Electronic Engineering Department of NED University of Engineering & Tech for the year 2003.
- **Ranked 1st** in Electrical Engineering and received Governor's Gold Medal for over all performance (140 candidates) of year 2002.
- 99.7 percentile among 40,000 candidates for university entrance examination (12th grade) of year 1997.
- 99.8 percentile among 60,000 candidates for college entrance examination (10th grade) of year 1995.

IEEE VOLUNTEERING

- Treasurer of the Joint Chapter of Communications/Signal Processing/Ocean Engineering of IEEE NSW Section for 2011.
- Chair of IEEE UNSW Student Branch for the term 2010.
- 2010 Organizing Chair of Annual IEEE poster competition at UNSW called iToF
<http://www.cse.unsw.edu.au/~iee/ifof2010>
- Technical Program Committee (TPC) for
 - IEEE ICC 2012 (Ottawa, Canada),
 - IEEE VTC Spring 2012 (Yokohama, Japan),
 - IEEE VTC Spring 2013 (Dresden, Germany).
- Session Chair at IEEE WCNC 2010.
- Reviewer for
 - IEEE Transactions on Communications
 - IEEE Transactions on Wireless Communications
 - IEEE Transactions on Vehicular Technology
 - IEEE Communications Letters
 - IEEE Wireless Communications Letters
 - European Transactions on Telecommunications (Wiley)
 - IET Communications
 - IEEE ICC, Globecom, WCNC, VTC, AusCTW

REFERENCES

Available upon request.