Yun Hou

Home Address: Flat 8, Jerome House 5-13 Glendower Place London SW7 3DU, United Kingdom *e-mail*: yun.hou@imperial.ac.uk *Phone*: +44 (0)77 1705 1861 *Fax*: +44 (0)20 7594 6302 (Attn: Yun Hou) Office Address: Communications and Signal Processing Electrical and Electronic Engineering Imperial College South Kensington London, SW7 2BT United Kingdom

EDUCATION

2005 - 2009	PhD in Wireless Communications	Imperial College	
	 Research Topic: Resource allocation for wireless mesh networks Supervisor: Prof. Kin K. Leung 		
2004 - 2005	MSc in Communications and Signal Processing	Imperial College	
	 Thesis Title: TCP Improvement over Wireless Networks using Predictive Scheduling Algorithms Supervisor: Prof. Kin K. Leung Courses taken: Advanced Communication Theory, Mobile Communication, Information Theory, Probability and Stochastic Process, Distributed Systems, Computer Networks, Digital Signal Processing. Distinction score of final exams 75.6/100 (distinction criterion: 70/100) 		
2000 - 2004	BEng in Communication Engineering Beijing University of Pa	osts and Telecoms	
	 Thesis Title: Implementation of Rate-Distortion function and its GUI on Linux platform Supervisor: Dr. Yinong Lee Taught courses: Microcomputer Principles, Analog and Digital Circuits, Communication Principles, Optical communications, etc. Outstanding student and top 5% graduate (major courses mark 88/100) 		

RESEARCH INTERESTS

Radio Resource Allocation, Wireless TCP/IP, Network Utility Maximization and Overlay Networks.

WORKING EXPERIENCE

2009 – Present	Research Associate at Imperial College, London, UK
	 Conducting research on Network Utility Maximization (NUM) for the US/UK ITA project. Writing research proposals and reports/deliverables for funded projects. Exploring collaboration opportunities with international institutes (e.g., Penn State University, City University of New York and IBM Research New York). Mentoring Master students on their final projects.
Summer 2008	Summer Internship at IBM T. J. Watson Research Center, NY, U.S.A.
	 Joined the Wireless Networking group to Conduct research on cloud computing. Accomplished a conference paper within 8 week despite on an unfamiliar topic. Exposed to research industries and expanded research interests. Improved fast-learning, self-motivating and team working skills.
Summer 2007	Summer Internship at Bell Labs, Alcatel-Lucent, Swindon, UK
	 Investigated the cross-layer performance of mesh scheduling with MIMO techniques. Results published as a conference paper. Learned teamwork and communication skills in industry.
Summer 2003	Internship at China Netcom Corporation, Kunming, China
	 Joined the Operation and Maintenance Group Conducted maintenance tasks for the backhaul network of Kunming city. Gained practical experience in network operations.

2008 – Present Optimal End-to-End Resource Allocation for Multihop Sensor Networks

- Key researcher to tackle NUM for the UK/US ITA project (<u>http://www.usukita.org/</u>).
- · Research topic: optimal end-to-end allocation of airtime, power and rate using NUM.
- Published three technical papers on international conferences so far.
- · Responsible for writing research proposals and reports for Imperial College's task.
- · Closely collaborating with many US research institutes.

2005 – 2008 Doctoral Research on Resource Allocation in Multi-hop Wireless Networks

- · Served as a key student researcher in the MEMBRANE project (<u>http://www.ic.ac.uk/membrane/</u>).
- Research topic: distributed scheduling algorithm for wireless backhaul networks.
- Published two journal papers and three conference papers.
- · Main contributor to the deliverables for Imperial's work package for the three years.
- Developed team working skills through collaboration with international project partners.

Jul – Sep 2008 Mapping between Demands and Resources in Cloud Computing

- A short term research conducted during the summer intern at IBM Research, New York.
- Research topic: Algorithms for mapping the logical demand onto physical resources.
- Proposed a greedy and effective algorithm to map the logical topologies onto physical networks.
- Initiated the study and accomplished a conference paper in only 8 weeks.

Jun – Sep 2005 Enhancing TCP via Channel Prediction

- MSc final project to tackle the performance degradation of TCP over wireless networks.
- Revealed significant performance degradation due to erroneous channel information.
- Proposed to use Wiener Filter, which reduces the packet delay by 20% at the TCP layer.
- Completed the project in 3 months and published a conference paper.

Feb – Jun 2004 Graphic-user Interface of the Rate-Distortion Function

- BEng final project to implement the GUI for the Rate-Distortion function on Linux OS.
- The developed GUI is now used in the lectures to demonstrate the RD function.
- Quickly acclimatized to the new operating system and programming languages.
- Gained experiences in project design and time management.

PUBLICATIONS

- Yun Hou and Kin K. Leung, "A Distributed Scheduling Framework for Multi-user Diversity Gain and Quality of Service in Wireless Mesh Networks," to appear in *IEEE Transactions of Wireless Communications*.
- Co-authored with Alexander Maltsev et. al., "MIMO and Multihop Cross-Layer Design for Wireless Backhaul –A Testbed Implementation," submitted to *IEEE Communications Magazine*.
- C. H. Liu, A. Gkelias, **Yun Hou** and K. K. Leung. "Cross-Layer Design for QoS in Wireless Mesh Networks," *Springer Wireless Personal Communications, Special Issue on Cross-Layer Design for Future Generation Wireless Networks, 2009.*
- Yun Hou, Kin K. Leung and Archan Misra, "Enhancing Congestion Control with Adaptive Per-Node Airtime Allocation for Wireless Sensor Networks," *Proc. of IEEE PIMRC 2009*, September 13-16, Tokyo, Japan.
- Yun Hou, Kin K. Leung and Archan Misra, "Mission-based Joint Optimal Resource Allocation in Wireless Multicast Sensor Networks," *Proc. of ACITA 2009*, September 23-24, Maryland, U.S.
- Yun Hou, Murtaza Zafer, Kang-Won Lee, Dinesh Verma and Kin K. Leung, "On the Mapping between Logical and Physical Topologies," *Proc. of IEEE COMSNETS*, January 5-10, Bangalore, India, 2009.
- Chi Liu, Athanasios Gkelias, **Yun Hou** and Kin K. Leung, "A Distributed Scheduling Algorithm with QoS Provisions in Multi-Hop Wireless Mesh Networks," *Proc. of IEEE Wimob 2008*, October 12-14, Avignon, France.
- Yun Hou, Kin K. Leung, Archan Misra, Tom La Porta, "Mission-Based Joint Adaptation of Data Rates and Transmission Power for Multicast Wireless Sensor Networks," *Proc. of ACITA 2008*, September 16-18, London, UK.
- Yun Hou, Alexandr M. Kuzminskiy, Federico Boccardi, Kai Yu, and Kin Leung, "A Cross-layer Study on Multiple-antenna Techniques in Wireless Backhaul Networks," *Proc. of IEEE ISWPC 2008*, May 7-9, Santorini, Greece.

- Yun Hou and Kin K. Leung, "A Novel Distributed Scheduling Algorithm for Wireless Mesh Networks," *Proc.* of *IEEE Globecom* 2007, November 26-30, Washington, D.C., U.S.
- Yun Hou and Kin K. Leung, "A Framework of Opportunistic Allocation of Wireless Resources," *Proc. of IEEE PacRim 2007*, August 22-24, Victoria, B.C, Canada.
- Yun Hou and Kin K. Leung, "Performance Impacts of Erroneous Channel Prediction On Packet Scheduling in Wireless Networks," *Proc. of Global Mobile Congress 2006*, October 9-11, Beijing, China.
- Yun Hou, "TCP Improvement over Wireless Networks using Predictive Scheduling Algorithms," MSc Thesis, Imperial College, London, UK, 2005.
- Yun Hou, "Implementation of Rate-Distortion Function and Its GUI on Linux Platform," BEng Thesis, Beijing University of Posts and Telecommunications, China, 2004.

ACADEMIC HONORS AND AWARDS

2005 to 2008	Three-year full studentship from EU- FP6 IST MEMBRANE Project, Imperial College, UK
2005	Distinction marks in MSc final examinations, Imperial College, UK
2004	Outstanding student award, Beijing University of Posts and Telecommunications, China
2001 to 2004	First class university awards, Beijing University of Posts and Telecommunications, China
1999	Third class award in the National Mathematics Competition, China

ACTIVITIES

Selected Talks:

October 2009 Invited Talk: "Distributed Scheduling Algorithms for Wireless Backhaul Netwo	City University of New York, U.S. <i>rks</i> . "
October 2009 Invited Talk: "Joint Optimal Resource Allocation in Wireless Sensor Networks.	Penn State University, U.S.
May 2008	Imperial College, UK
Internal Seminar of CSP Research Group: "Distributed Scheduling and Power	Control for Wireless Networks."
February 2007	Cefriel Milan, Italy
MEMBRANE Project Meeting presentation: "Scheduling Algorithms for Wirele	ess Backhaul Networks."

Journal reviewer: IEEE Trans. on Wireless Communications, IEEE Trans. on Communications, IEEE Trans. on Mobile Computing.

Conference reviewer: IEEE SPAWC 2007, IST Summit 2007, ACITA 2009, IEEE PIMRC and VTC 2009.

IEEE Member

OTHER SKILLS

Computer: experienced with C/C ++, MATLAB; familiar with NS2, OPNET.

Language: fluent Mandarin Chinese and English; basic Cantonese.