

# Shao-Cheng Wang

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**OBJECTIVE** Seeking a full-time position in the field of computer networks and protocol development starting in summer 2008.

## KEY QUALIFICATIONS

- In-depth experience in protocol analysis and design for wireless networks: IEEE 802.11 MAC, routing in wireless ad hoc networks, scheduling in wireless sensor networks, and cross-layer design for wireless applications.
- Skilled in advanced network simulations and test-bed experimentations for wireless network protocols.

- EDUCATION**
- Ph. D in Computer Engineering** **Expected Aug. 2008**  
**University of Florida** **Gainesville, FL. U.S.A**  
• GPA: 4.0/4.0  
• Dissertation Research with Prof. A. Helmy:  
- "A Unified Framework for Performance Analysis of Contention-Based Wireless MAC: Case Studies on QoS, Heterogeneity and Rate-Adaptation in 802.11"
- Engineer in Electrical Engineering** **Aug. 2006**  
**University of Southern California** **Los Angeles, CA. U.S.A**  
• GPA: 3.82/4.0  
• Relevant Coursework: Wireless and Mobile Networks Design and Laboratory, Design and Analysis of Computer Communication Networks, Broadband Network Architectures, Queueing Theory, Wireless Sensor Networks
- Master of Science in Electrical Engineering** **Jun. 1999**  
**Bachelor of Science in Electrical Engineering** **Jun. 1997**  
**National Taiwan University** **Taipei, Taiwan**  
• Graduate GPA: 4.0/4.0 (Ranked 1st place in first year graduate study)  
• Undergraduate GPA: 3.78/4.0 (Junior/senior year engineering courses GPA: 4.0/4.0)
- EXPERIENCE**
- Graduate Technical Intern** **May. 2005 – Dec. 2005**  
**Intel Corporation (Mobility Group)** **Beaverton, OR , U.S.A.**  
• "Secure, Instant, Reliable and Available" communications on mobile virtualization platforms  
- Performed software integrations and optimizations of VoIP services to preserve integrity and provide reliable communications against faults and malicious crashes in wireless virtualization platforms. Performed evaluations and proof-of-concept demo to corporate executives and researchers in company-wide research showcases (MIDD, country fair '05).  
• "Business Class Wireless for Enterprise Conferencing"  
- Integrated systems and participated proof-of-concept demo for QoS WLAN video/audio/data conferencing for office collaborations.
- System Engineer, Intern** **Jun. 2004 – Aug. 2004**  
**Winbond Electronics Corporation America** **Torrance, CA. U.S.A.**  
• Developed simulation platforms for performance evaluations of 802.11 a/b/g chipsets.  
• Performed evaluations and modeling of QOS and interoperability in WLANs.
- Research Assistant** **Jan. 2004 – present**  
**Dept. of CISE, University of Florida** **Gainesville, FL. U.S.A.**  
**Dept. of EE-Systems, University of Southern California** **Los Angeles, CA. U.S.A.**  
• "Performance modeling and protocol implementation of wireless MAC"  
- Proposed a unified performance evaluation framework to analyze and quantify IEEE 802.11

MAC performance under diversified network operation environment  
- Proposed and implemented a background traffic aware rate adaptation algorithm for IEEE 802.11 MAC; evaluated its performance against various wireless conditions and traffic levels

### Teaching Assistant

Jan. 2004 – May. 2006

Dept. of EE-Systems, University of Southern California

Los Angeles, CA. U.S.A.

- Course: “Wireless and Mobile Networks Design and Laboratory” (EE579, Dr. A. Helmy)
  - Lead wired and wireless networks performance laboratory exercises; graded lab reports.
  - Designed, setup, and configured emulated networks.
- Course: “Introduction to Computer Networks” (EE450, Prof. A. Zahid)
  - Lead and designed the 1st pilot program of Ethereal measurement and OPNET simulation lab assignments for undergraduate level computer networking course.

### AWARDS AND FELLOWSHIPS

- *Honorable mention of best TA award*, Department of Electrical Engineering, USC, 2005
- NSF student travel grant to ICNP 2003, Atlanta, USA.
- Graduate Student Fellowship, Ministry of Education, Taiwanese Government, 1998-99
- Second Prize, 1997 DSP Design Championship sponsored by Texas Instruments, 1997.
- Chiang Kai Shek Memorial Fellowship, Kuomintang Education Foundation, Taiwan, 1996-97

### COMPUTER SKILLS

- Network simulators: NS-2, GloMoSim, OPNET
- Network Protocols: TCP/IP performance, IP static/dynamic routing, Wireless MAC (802.11a/b/g/e/n)
- Linux kernel programming: WLAN drivers, Xen virtualization platforms
- Programming Languages: C, C++, Basic, Assembly, TCP/IP socket programming
- Firmware programming: TI C3x DSP programming, 8051 Assembly

### SELECTED PUBLICATIONS

- Wang, S.C.; Helmy, A., "BEWARE: Background Traffic-Aware Rate Adaptation for IEEE 802.11 MAC," accepted as an EXTENDED paper for presentation at WoWMoM 2008 (acceptance rate ~7 %)
- Wang, S.C.; Helmy, A., " Performance Limits and Analysis of Contention-based IEEE 802.11 MAC," IEEE Conference on Local Computer Networks (LCN), Nov. 2006
- Wang, S.C.; Psounis, K.; Helmy, A., "Support of Voice Services in Congested Hybrid IEEE 802.11b and 802.11g Wireless Hotspots," USC CENG Technical Report, 2005 (extended version under submission)
- Wang, S.C.; Chen, Y.M.; Lee T.H.; Helmy A., “Performance Evaluations for Hybrid IEEE 802.11b and 802.11g Wireless Networks,” IEEE International Performance Computing and Communications Conference (IPCCC), Apr. 2005
- Begum, S.; Wang, S.C.; Krishnamamachari B.; Helmy A., “ELECTION: Energy-efficient and Low-latency scheduling scheme for wireless sensor networks,” IEEE Conference on Local Computer Networks (LCN), Nov. 2004
- Wang, S.C.; Helmy, A., "Effects of Small Transfers and Traffic Patterns on Performance and Cache Efficacy of Ad Hoc Routing," poster in Mobicom2003, ICNP 2003

### PATENTS

- “Reliable reporting of location data,” US patent No. 20070153715
- “Method and system for providing security and reliability to collaborative applications,” US patent No. 20070157025
- “Method, apparatus, and system for biometric authentication of user identity,” US patent No. 20070155366
- “A speech controlled artificial limb based on DSP chip,” R.O.C. Patent No. 351174.

### PROFESSIONAL ACTIVITIES

- Technical Program Committee for 3rd IEEE Workshop on advanced EXPERIMENTAL activities ON WIRELESS networks & systems (EXPONWIRELESS 2008)
- Invited reviewer for IEEE Communication Letters