

# HUIYU LUO

2550 Yeager Road, Apt. 6-12, West Lafayette, IN, 47906

(765) 409-2842

<http://www.ee.ucla.edu/~huiyu>

[huiyu@ee.ucla.edu](mailto:huiyu@ee.ucla.edu)

---

## CANDIDATE: PH. D IN ELECTRICAL ENGINEERING

*Communication systems ~ Data networks ~ Integrated circuit design*

Ph.D graduate in electrical engineering with rich research experience and solid background aspires to work in telecommunication and signal processing industry. Critical thinker and fast learner who can apply extensive knowledge in electrical engineering to product development. Published in various conferences and journals, with expertise in:

- Telecommunication systems and data networks. Based on a firm understanding of information theory, my knowledge extends to Bayesian estimation, optimization, wireless communication, source/channel coding, adaptive filtering, network routing, telecommunication protocols.
- Large-scale computer simulations. I have over five years experience in using Fortran, C/C++, and Matlab. I have conducted network simulations with NS2, and written multi-thread and network applications using Java2 SE. Other software skills include C#, Tcl/Tk and Perl.
- Analog IC design. I have designed analog IC using 0.18  $\mu\text{m}$  CMOS technology under the Cadence design environment. Past projects include differential operational amplifier, RF front-end for 5 GHz wireless LAN (LNA, mixers, oscillator), and 8-bit CMOS pipelined ADC.
- Digital IC design. I have designed digital circuits using SPICE, Verilog, and Synopsys.

## EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES, Ca, USA

**Ph. D.** 2005 Electrical Engineering

**M. S.** 2002 Electrical Engineering

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA, Hefei, China

**B. S.** 1999 Mechanical Engineering

## RESEARCH & TEACHING EXPERIENCE

CENTER FOR EMBEDDED NETWORKED SENSORS

*A leading research center on wireless sensor networks (<http://research.cens.ucla.edu>)*

**Graduate Researcher** 2004 – 2005

Conducted research on information theoretic aspects of wireless sensor networks, combined routing and source coding, adaptive field sampling with mobile sensors. Projects were carried out through theoretical analysis, extensive computer simulations, and field experiments.

**Internship Team Leader** 2004, 2005

Supervised small groups of interns to carry out research projects on wireless sensor networks.

ELECTRICAL ENGINEERING DEPARTMENT, UCLA

**Graduate Researcher** 2003 – 2004

Worked on adaptive DPCM coding and estimation fidelity in distributed sensor networks.

**Teaching Assistant** 2002 – 2004

Led weekly class recitation for “Analog Electronics Laboratories,” “Digital Signal Processing,” and “Digital Communication Systems.” Other responsibilities include assisting students to set up analog circuit experiments, weekly discussion with students, preparing and grading examinations.

**Graduate Researcher**

2001

Worked on wireless ad hoc networks for the Office of Naval Research. Our main task involved designing MAC and Network layer protocols for state of the art ad hoc networks.

TURBULENCE LABORATORY, UCLA

**Graduate Researcher**

1999 – 2000

Conducted large-scale computer simulations on turbulent flows.

**SELECTED PROJECTS*****Communication Systems and Signal Processing***

- Adaptive equalizers for MIMO wireless communication channels.
- Evaluation of joint source and channel coding for multi-hop wireless channels.
- Adaptive AR modeling of non-stationary EEG by Kalman filtering.
- Pitch and formant-tracking systems for speech processing.

***Analog, Digital Circuit Design and Embedded Systems***

- A fully differential wide-band operational amplifier.
- A RF front-end for 5GHz wireless LAN.
- An 8-bit CMOS pipelined A/D converter.
- A CMOS digital Highpass/Lowpass filter.
- A 256 by 64 content addressable memory.
- Environmental mapping using distance ranging for self-aware locomotion.

**SELECTED PUBLICATIONS**

1. Huiyu Luo and Gregory Pottie, "Designing routes for source coding with explicit side information in wireless sensor networks," *IEEE/ACM Trans. Networking* (to appear).
2. Huiyu Luo, X. Kong, and Gregory Pottie, "An adaptive algorithm for sampling the sunlight field under a forest canopy using mobile sensors," *ACM Trans. Sensor Networks* (under review).
3. Huiyu Luo and Gregory Pottie, "A study on combined routing and source coding with explicit side information in sensor networks," *IEEE Globcomm*, St. Louis, MO, USA, November, 2005.
4. Huiyu Luo and Gregory Pottie, "Balanced aggregation trees for routing correlated data in wireless sensor networks," *IEEE ISIT*, Adelaide, Australia, September, 2005.
5. Huiyu Luo and Gregory Pottie, "Routing explicit side information for data compression in wireless sensor networks," *DCOSS*, Marina del Rey, CA, USA, June-July, 2005.
6. Huiyu Luo, Yuching Tong, and Gregory Pottie, "A two-stage DPCM scheme for wireless sensor networks," *IEEE ICASSP*, Philadelphia, PA, USA, March, 2005.
7. Gregory Pottie, Huiyu Luo, and A. Pandya, "Sensor network information theory," chapter in *Encyclopedia of Sensors*, Edited by C. A. Grimes et al., American Scientific Publishers, 2005.
8. Ameesh Pandya, Huiyu Luo, and Gregory Pottie, "Spatial fidelity and estimation in sensor networks," *The 38th Asilomar Conf. Signals, Systems, and Computers*, CA, USA, Nov., 2004.
9. Huiyu Luo, Ameesh Pandya, and Gregory Pottie, "Detection fidelity in distributed wireless sensor networks," *UCLA CENS Technical Report 20*, 2003.
10. Izhak Rubin, Arash Behzad, Runhe Zhang, Huiyu Luo, and Eric Caballero, "TBONE: a mobile-backbone protocol for ad hoc wireless networks," *IEEE Aerospace Conference*, 2002.