

- Objective** To obtain a challenging full-time position related to PHY design and signal processing for wireless communication systems; specific interests include UWB systems, ranging and localization, cognitive radio, wireless sensor networks, cellular systems, OFDM, WiMAX, and MIMO.
- Education** *Ph.D. in Electrical Engineering*, May 2006, University of South Florida, Tampa, FL.
Ph.D. Dissertation: “Towards Practical Design of Impulse Radio Ultrawideband Systems: Parameter Estimation and Adaptation, Interference Mitigation, and Performance Analysis” (Nominated for outstanding dissertation award, decision pending)
M.S. in Electrical & Computer Engineering, Dec. 2002, University of New Mexico, Albuquerque, NM.
M.S. Thesis: “Enhancements to RSS based Indoor Tracking Systems Using Kalman Filters”
B.S. in Electrical and Electronics Engineering, May 2001, Bilkent University, Ankara, Turkey.
- Experience** **Docomolabs, USA** *Research Intern*
San Jose, CA. **June 2006 – August 2006**
Working on mitigation of NLOS effects and fingerprint based localization for UWB systems.
- Mitsubishi Electric Research Labs** *Research Intern*
Cambridge, MA. **January 2005 – August 2005**
Worked on UWB ranging. Developed algorithms on threshold selection, multiscale energy products, multiuser interference mitigation, and maximum likelihood estimation for TOA estimation. Participated in standardization activities for 802.15.4a. The work resulted in 5 journal submissions, 6 conference submissions, and 4 patent submissions.
- University of South Florida** *Instructor*
Tampa, FL. **August 2005 – May 2006**
Instructed the *EEL4512: Introduction to Communication Systems* course in Fall and Spring semesters to over 50 students.
- University of South Florida** *Research and Teaching Assistant*
Tampa, FL. **January 2003 – December 2004**
– Worked on different aspects of UWB systems towards my dissertation.
– *Fall 2004*: Worked as a part of graduate students on the design and development of an FPGA-based ultrawideband testbed using energy detection (project supported by Honeywell, Inc., and CME, Inc.).
– *Fall 2003*: Worked on adding wireless communications capability to a company’s biometric handheld devices. Particular tasks included programming of AVR microcontrollers and Atmel RF211 wireless chipsets using C++ (project supported by Secure Biometrics Corporation).
– *Teaching Assistant*: Advanced Topics in Communications (Spring 2004), Introduction to Communication Systems (Spring 2003)
- University of New Mexico** *Research and Teaching Assistant*
Albuquerque, NM. **August 2001 – December 2002**
– *Fall 2002*: Performed a wireless LAN site survey for the electrical engineering building using Ekahau Positioning Engine. Using these data, developed an increased-accuracy indoor geolocation system in MATLAB, by theoretically modeling and estimating the motion of the mobile with Kalman Filters.
– *Fall 2001*: Used OPNET to model part of the Electrical Engineering Department network and analyze its efficiency.
– *Teaching Assistant*: Circuit Theory I (Fall 2001, Spring 2001), and Electronics I (Fall 2002).

- Professional Activities**
- Student Member of IEEE
 - Reviewer for the following journals: IEEE Communications Letters, IEEE Journal on Selected Areas in Communications, IEEE Trans. Communications, IEEE Trans. Wireless Communications, IEEE Trans. Signal Processing, IEEE Trans. Vehicular Technology, IEE Proceedings on Communications, IEE Electronics Letters, EURASIP Journal on Wireless Communications and Networking, Journal on Communications and Networks, Wiley Journal on Wireless Communications and Mobile Computing.
 - Reviewer for international conferences, such as GLOBECOM, ICC, ICU, PIMRC, VTC, WCNC, WirelessComm, ISCC, EW, SECON, WAMICON, ISWCS etc.
 - Worked as a program assistant in VTC Fall-2003 (Orlando, FL) and WCNC-2004 (Atlanta, GA). Acted as a session chair in each conference.
- Computer and Personal Skills**
- Operating Systems: Linux, Windows 98/2000/XP, Unix.
 - Computer language skills: Java, C/C++, Assembler.
 - Developing Laboratory Simulations: Matlab (proficient), ADS, Magic, Xilinx, Protel, P-Spice, OPNET.
 - Other: Latex, MS Office, Adobe Premiere, Adobe Photoshop, Flash etc.
 - Turkish (native tongue), English (fluent), German (basic), Spanish (basic)
- Honors and Awards**
- Nominated for outstanding dissertation award, USF (decision pending)
 - Teaching & research assistantships from University of New Mexico (Fall 2001-Fall 2002) and University of South Florida (Spring 2003-Fall 2004)
 - Bilkent University High Honor List (1 semester), Bilkent University Honor List (5 semesters) (1997-2001)
 - Founding Board Member of Turkish Student Association, UNM (2002)
 - Ranked 169th in nationwide university entrance, exam thus receiving (1997): 1) Full scholarship covering tuition and living expenses for four years from Bilkent University, 2) Abroad Undergraduate Education Fellowship from the Turkish National Education Ministry.
 - Ranked 1st and 5th (in all Turkey) in Military High-Schools entrance exams (1994)
 - 2nd place in entrance (1990) and graduation (1994) from Vefa Anatolian Secondary School
 - Candidate for the International-Enformatic-Olympics for Turkish Team (1996)
 - Silver Medal, Bilkent University Summer Soccer Tournament (1999)
 - Bronze Medal in Istanbul Inter-High Schools Chess Competition, and Gold Medal in Sehremini High School Chess Competition (1996)
- Graduate Level Coursework**
- Communications: Advanced Topics in Wireless Communications, Mobile and Personal Communications, Wireless Network Architectures and Protocols, Wireless Communications
 - Digital Signal Processing: Digital Image Processing, Random Signal Processing
 - Math and Statistics: Advanced Linear Algebra, Time-Series Analysis, Mathematical Aspects of Communications Engineering, Machine Learning
 - RF and Microwave: Wireless Circuits & Syst. Design Laboratory, RF & Microwave Circuits
 - Computer Engineering: Computer Software Systems, Foundations of Computing, Advanced Computer Architecture, Advanced Networking Topics, Multimedia Systems
- Books and Book Chapters**
- Z. Sahinoglu, S. Gezici, and I. Guvenc, "Range Estimation in Ultrawideband Wireless Systems", (in preparation), Cambridge University Press (due April 2007).
- H. Arslan, I. Guvenc, and S. Ahmed, "UWB Modulation Options", Book Chapter, Ultra Wideband Wireless Communications, John Wiley & Sons, Inc., 2006, to appear.
- Journal Papers**
- I. Guvenc and H. Arslan, "A Review on Multiple Access Interference Cancellation and Avoidance for IR-UWB", Submitted to Elsevier Signal Processing Journal, April 2006.
- I. Guvenc and H. Arslan, "On the Transceiver Types of IR-UWB Systems at Sub-Nyquist Sampling Rates", Submitted to IEEE Trans. Vehic. Technol., Jan. 2006.

I. Guvenc and H. Arslan, "Optimality of Searchback Threshold Selection for TOA Estimation in IR-UWB Systems", Submitted to IEEE Trans. Wireless Commun., Jan. 2006.

I. Guvenc, Z. Sahinoglu, and H. Arslan, "Multiscale Energy Products and Normalized Threshold Selection for TOA Estimation in IR-UWB Systems", Submitted to IEEE Trans. Vehic. Technol., Oct. 2005.

M. E. Sahin, I. Guvenc, and H. Arslan, "Joint Parameter Estimation for UWB Energy Detectors Using OOK", to Appear in Springer Wireless Personal Commun. Journal, 2006.

I. Guvenc, Z. Sahinoglu, and P. Orlik, "TOA Estimation in IR-UWB with Different Transceiver Types", IEEE Trans. Microwave Theory and Techniques (MTT), Special Issue on Ultrawideband Communications, vol. 54, no. 4, pp. 1876-1886, Apr. 2006.

I. Guvenc, Z. Sahinoglu, A. F. Molisch, and P. Orlik, "Noncoherent TOA Estimation in IR-UWB Systems with Different Signal Waveforms", Submitted to IEEE Trans. Vehic. Technol., Aug. 2005.

Z. Sahinoglu and I. Guvenc, "Energy Image Analysis for TOA Estimation in Multiuser IR-UWB Systems", to Appear in EURASIP Journal on Wireless Communications and Networking, Special Issue on Ultrawideband Communications, 2006.

I. Guvenc and Z. Sahinoglu, "Threshold Selection for UWB TOA Estimation Based on Kurtosis Analysis", IEEE Commun. Lett., Dec. 2005.

I. Guvenc, H. Arslan, S. Gezici, and H. Kobayashi, "Adaptive multiple accessing for UWB-IR wireless sensor networks", to Appear in IEE Proceedings on Communications, 2005.

I. Guvenc and H. Arslan, "TH Sequence Construction for Centralised UWB-IR Systems in Dispersive Channels", IEE Electronics Lett., vol. 40, pp. 491-492, Apr. 2004.

I. Guvenc and H. Arslan, "Performance Analysis of UWB Systems in the Presence of Timing Jitter", Journal on Commun. Networks, vol. 6, pp. 182-191, June 2004.

Conference Papers

Z. Sahinoglu and I. Guvenc, "Energy Matrix Processing (EMP) to Mitigate Multi-User Interference for UWB Ranging", to appear in IEEE ICUWB, Weltham, MA, 2006.

I. Guvenc and H. Arslan, "Bit Error Rates of IR-UWB Transceiver Types at Sub-Nyquist Sampling Rates", in Proc. IEEE Wireless Commun. Networking Conf. (WCNC), Las Vegas, Apr. 2006.

I. Guvenc and H. Arslan, "Comparison of Two Searchback Schemes for Non-Coherent TOA Estimation in IR-UWB Systems", in Proc. IEEE Sarnoff Symposium, Princeton, NJ, March 2006.

H. Celebi, I. Guvenc, and H. Arslan, "On the Statistics of Channel Models for UWB Ranging", in Proc. IEEE Sarnoff Symposium, Princeton, NJ, March 2006.

I. Guvenc, Z. Sahinoglu, A. F. Molisch, and P. Orlik, "Non-coherent TOA Estimation in IR-UWB Networks with Different Signal Waveforms", in Proc. IEEE Int. Workshop on Ultrawideband Wireless Networks (UWBNETS), Boston, MA, Oct. 2005 (Invited Paper).

I. Guvenc and Z. Sahinoglu, "Multiscale Energy Products for TOA Estimation in IR-UWB Systems", in Proc. IEEE Global Telecommun. Conf. (GLOBECOM), St. Louis, MO, Dec. 2005.

I. Guvenc and Z. Sahinoglu, "TOA Estimation with Different IR-UWB Transceiver Types", in

Proc. IEEE International Conf. UWB (ICU), Zurich, Switzerland, Sept. 2005.

I. Guvenc and Z. Sahinoglu, "Threshold Based TOA Estimation for Impulse Radio UWB Systems", in Proc. IEEE International Conf. UWB (ICU), Zurich, Switzerland, Sept. 2005.

I. Guvenc and H. Arslan, "UWB Channel Estimation with Various Sampling Rate Options", in Proc. IEEE Sarnoff Symp., Princeton, NJ, April 2005.

M. E. Sahin, I. Guvenc, and H. Arslan, "Optimization of Energy Detector Receivers for UWB Systems", in Proc. IEEE Vehic. Technol. Conf. (VTC), Stockholm, Sweden, Spring 2005.

I. Guvenc, H. Arslan, S. Gezici, and H. Kobayashi, "Adaptation of Multiple Access Parameters in Time Hopping UWB Cluster Based Wireless Sensor Networks", in Proc. IEEE Mobile Adhoc Sensor Systems Conf. (MASS), Fort Lauderdale, FL, October 2004.

I. Guvenc and H. Arslan, "Design and Performance Analysis of TH Sequences for UWB-IR Systems", in Proc. IEEE Wireless Commun. Networking Conf. (WCNC), Atlanta, GA, Mar. 2004.

I. Guvenc and H. Arslan, "Performance Evaluation of UWB Systems in the Presence of Timing Jitter", in Proc. IEEE Conf. Ultra-wideband Syst. Technol. (UWBST), Reston, Virginia, Nov. 2003.

I. Guvenc and H. Arslan, "On the modulation options for UWB systems", In Proc. IEEE Conf. on Military Commun. (MILCOM), Boston, USA, Oct. 2003.

I. Guvenc and H. Arslan, "A Semi-blind Channel Estimator and Multiuser Receiver for UWB Systems", In Proc. IEEE Wireless and Microwave Conf. (WAMI), Clearwater, FL, Apr. 2004.

I. Guvenc, C. Abdallah, R. Jordan and O. Dedeoglu, "Enhancements to RSS Based Indoor Tracking Systems Using Kalman Filters", In Proc. Global Signal Processing Conf. (GSPx), Dallas, TX, Apr. 2003.

**Patent
Submissions**

Z. Sahinoglu, I. Guvenc, A. Molisch, "Method and System for Estimating Time of Arrival of Signals Using Multiple Different Time Scales", Filed, MERL Patent No:1682.

A. F. Molisch, I. Guvenc, Z. Sahinoglu, "Method and Receiver for Identifying a Leading Edge Time Period in a Received Radio Signal", Filed, Merl Patent No:1715.

I. Guvenc, Z. Sahinoglu, "A Method for Time of Arrival Estimation Using Kurtosis Analysis"

Z. Sahinoglu, I. Guvenc, "Filtering and Multiple Hypothesis Testing for Time of Arrival Estimation"

**IEEE Standards
Contributions**

I. Guvenc, Z. Sahinoglu, "Simulations on Non-coherent ranging", IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs), 06/19/2005

Z. Sahinoglu, I. Guvenc, "Simulations on Non-coherent ranging - II", IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs), 07/05/2005

**Poster
Presentations**

H. Celebi, M. E. Sahin, I. Guvenc, S. Ahmed, T. S. Price and H. Arslan, "Low Complexity UWB Impulse Radio", in Wireless and Microwave Conf. (WAMI), Clearwater, FL, Apr. 2005.

I. Guvenc and H. Arslan, "Multiuser Transceiver Design for Time Hopping Ultrawideband Impulse Radio Systems", in Wireless and Microwave Conf. (WAMI), Clearwater, FL, Apr. 2004.

N. Brown, J. Tucker, I. Guvenc, and H. Arslan, "A Flexible Hardware Platform for Ultra-Wideband Communication Research", in Wireless and Microwave Conf. (WAMI), Clearwater, FL, Apr. 2004.

I. Guvenc and H. Arslan, "System Design Issues in Ultrawideband Communications", in IEEE Wireless and Microwave Symp. (WAMI), Tampa, FL, Apr. 2003.

Other Reports

Ismail Guvenc, "5GHz Receiver Design and Simulation", Project Report (RF and Microwave Circuits I), Fall 2004, University of South Florida. (Designed and simulated the whole receiver as well as its various components in ADS, such as coupled-line band-pass filter, micro-strip quadrature coupler etc.)

Ismail Guvenc, "Simulation Study of UWB Systems Using ADS UWB-Design Guide", Internal Report, Dec. 2003 (Was considered for use as a graduate-level teaching material in WAMI LAB at University of South Florida).

Ismail Guvenc, "Channel Modeling of UWB Body Area Networks for Healthcare Applications", Submitted to American Heart Association for Pre-doctoral Fellowship Grant, 2004, University of South Florida.

Ismail Guvenc, "Peer-to-Peer File Sharing Systems: A Survey", Project Report (Advanced Computer Networks), Spring 2002, University of New Mexico.

Ismail Guvenc, "A Survey on Maximum Flow Algorithms", Project Report (Introduction to Algorithms), Fall 2001, University of New Mexico.

Ismail Guvenc, "Effects of Attacks on Spatial and Frequency Domain Image Watermarking Algorithms", Project Report (Digital Image Processing), Fall 2001, University of New Mexico.

Ismail Guvenc, "Simulation of Forward Error Correction Algorithms Using OPNET", Project Report (Multimedia Systems), Fall 2001, University of New Mexico.

Other Projects Involved in Undergraduate Level

Development of a Java applet that uses Genetic Algorithms to optimize a function,
Development of a visual interface in C++ Builder to communicate with a mouse that senses color (used in textile industry),
Design and development of Assembler code and circuitry of traffic light controller,
Circuit design projects using Xilinx, MAGIC, Protel and P-spice.

References

Huseyin Arslan, Assistant Professor, Department of Electrical Engineering, University of South Florida, Tampa, FL.

Zafer Sahinoglu, Principal Technical Staff, Mitsubishi Electric Research Labs, Cambridge, MA.

Philip Orlik, Principal Technical Staff, Mitsubishi Electric Research Labs, Cambridge, MA.

Andreas F. Molisch, Senior Principal Technical Staff, Mitsubishi Electric Research Labs, Cambridge, MA.