

# Erich P. Stuntebeck

Curriculum Vitæ

## General Information

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Ubiquitous Computing Research Group  
Georgia Institute of Technology  
GVU Center, 3rd Floor  
85 5th St. NW  
Atlanta, GA 30308-1030 USA

Email: [eps@gatech.edu](mailto:eps@gatech.edu)  
Phone: +1 404 492 6021  
<http://www.erichstuntebeck.com>  
US Citizen

## Education

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### **Pursuing the Ph.D. in Electrical and Computer Engineering**

Georgia Institute of Technology, Atlanta, Georgia  
Degree expected: August, 2010  
Advisor: Dr. Gregory Abowd (College of Computing)  
Co-Advisor: Dr. George Riley (School of Electrical and Computer Engineering)  
Minor: Computer Science  
Research: Indoor localization systems for ubiquitous computing applications.

### **TI:GER (Technological Innovation : Generating Economic Results) Program**

Georgia Institute of Technology, Atlanta, Georgia  
Joint program with the Georgia Tech College of Management and the Emory University School of Law focused on developing skill in protecting and commercializing technological innovations coming from the research lab. Ph.D. students work with one MBA student, a patent-track J.D. student, and a technology-track J.D. student to develop a commercialization plan for their research.  
<http://tiger.gatech.edu>

2006 **M.S. in Electrical and Computer Engineering**

Georgia Institute of Technology, Atlanta, Georgia  
Minor: Computer Science

2004 **Master of Business Administration**

University of Notre Dame, Notre Dame, Indiana  
Mendoza College of Business

2004 **B.S. in Computer Engineering, *cum laude***

University of Notre Dame, Notre Dame, Indiana

## Professional Experience

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### **Microsoft Research**

Mountain View, California  
*Research Intern*, Silicon Valley Campus, Summer 2009

- Researched and designed track-based location applications with StarTrack, a framework for track-based applications.

### **uSenso Technologies**

Atlanta, Georgia  
*Co-Founder, 2008 - Present*

## **IBM Research, T.J. Watson Research Center**

Hawthorne, New York

*Research Intern*, Pervasive Healthcare Technologies Group, Summer 2007

- Designed and implemented HealthSense, a framework for real-time tagging of healthcare-related sensor data streams through user-assisted machine learning techniques.
- Work resulted in publication [C6].

## **Laboratory for Telecommunications Sciences (U.S. Government)**

College Park, Maryland

*Research Intern*, Wireless Technologies Team, Summer 2006

- Designed and implemented a Software Communication Architecture (SCA) compliant cognitive radio framework enabling integration of a software radio and a cognitive engine.
- Implemented a software radio with digital modulation and demonstrated channel capacity maximization capabilities of the cognitive engine.
- Work resulted in publications [J2] and [C4].

## **Lucent Technologies, Bell Laboratories**

Holmdel, New Jersey

*Research Intern*, High Speed Mobile Data Research, Summer 2005

- Designed, developed, deployed, and tested a wireless mesh network of RFID sensors for indoor location tracking.
- Developed an algorithm capable of localizing any tag seen by the network of RFID sensors within a particular room.
- Designed a system to utilize user location data to route telephone calls to the nearest physical terminal.
- Work resulted in publication [C3].

## **Lucent Technologies, Bell Laboratories**

Holmdel, New Jersey

*Research Intern*, Multimedia Communications Research, Summers 2000-2003

- Designed and developed remote management capabilities for a Session Initiation Protocol (SIP) server application, including a Java-based client-side control application.
- Designed an application to gather SNMP statistics from network equipment and analyze network traffic patterns.
- Developed and tested the Internet access module of a fiber-optic media gateway.
- Worked with IP multicast streaming video and network analysis hardware.

## **Academic Experience**

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### **Graduate Research Assistant**

Georgia Institute of Technology, Ubiquitous Computing Research Group

8/2006 - Present

Advisor: Dr. Gregory Abowd

Researching indoor wireless positioning systems. Work resulted in publications [C5], [C7], [C8], and [TR2].

### **Graduate Research Assistant**

Georgia Institute of Technology, Broadband and Wireless Networking Laboratory  
8/2005 - 5/2006

Advisor: Dr. Ian Akyildiz

Researched communication protocols and architectures for underground wireless sensor networks. Work resulted in publications [J1] and [C2].

### **Undergraduate Research Assistant**

University of Notre Dame, Software and Systems Laboratory  
8/2003 - 5/2004

Advisor: Dr. Aaron Striegel

Developed methods and software for grid computing task management.

Work resulted in publications [C1] and [TR1].

### **Undergraduate Research Assistant**

University of Notre Dame, Artificial Intelligence and Robotics Laboratory  
9/2001 - 5/2002

Advisor: Dr. Matthias Scheutz

Developed a scripting language for a neural network simulator.

## **Publications**

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### **Journals and Periodicals:**

- J3. J. Lindqvist, P. Pawar, E. Stuntebeck. "HotMobile 2008: Postconference Report," *IEEE Pervasive Computing Magazine*, Volume 7, Issue 4: Fall 2008.
- J2. T. Clancy, J. Hecker, T. O'Shea, E. Stuntebeck. "Applications of Machine Learning to Cognitive Radio Networks," *IEEE Wireless Communications Magazine*, Spring 2007.
- J1. I. Akyildiz, E. Stuntebeck (Principal research and authorship by E. Stuntebeck). "Wireless Underground Sensor Networks: Research Challenges," *Elsevier Ad Hoc Networks*, November 2006.

### **Conferences and Workshops:**

- C8. S. Patel, E. Stuntebeck, T. Robertson. "PL-Tags: Detecting Batteryless Tags through the Power Lines in a Building," International Conference on Pervasive Computing (Pervasive '09), May 2009 - Nara, Japan.
- C7. E. Stuntebeck, S. Patel, T. Robertson, M. Reynolds, G. Abowd. "Wideband PowerLine Positioning for Indoor Localization," International Conference on Ubiquitous Computing (UbiComp'08), 19% acceptance rate, September 2008 - Seoul, Korea.
- C6. E. Stuntebeck, J. Davis II, G. Abowd, M. Blount. "HealthSense: Classification of Health-related Sensor Data through User-Assisted Machine Learning," Workshop on Mobile Computing Systems and Applications (HotMobile'08), 23% acceptance rate, February 2008 - Napa, California.
- C5. M. Köhler, S. Patel, J. Summet, E. Stuntebeck, G. Abowd. "TrackSense: Infrastructure Free Precise Indoor Positioning using Projected Patterns," International Conference on Pervasive Computing (Pervasive'07), 16% acceptance rate, May 2007 - Toronto, Ontario, Canada.
- C4. E. Stuntebeck, T. O'Shea, J. Hecker, T. Clancy. "Architecture for an Open-Source Cognitive Radio," SDR Forum Technical Conference (SDR'06), November 2006.
- C3. Y. Lee, E. Stuntebeck. "MERIT: Mesh of RF Sensors for Indoor Tracking," IEEE Communications Society Conference on Sensor, Mesh, and Ad Hoc Communications and Networks (SECON'06), 25% acceptance rate, September 2006 - Reston, Virginia.
- C2. E. Stuntebeck, D. Pompili, T. Melodia. "Wireless Underground Sensor Networks Using Commodity Terrestrial Motives," IEEE Communications Society Conference on Sensor, Mesh, and Ad Hoc Communications and Networks (SECON'06), September 2006 - Reston, Virginia.

- C1. A. Striegel, M. Shorts, E. Stuntebeck, D. Salyers, J. Izaguirre. "Taming the Grid Management Beast with GRIM," GlobusWORLD, January 2004.

### **Technical Reports:**

- TR2. E. Stuntebeck, T. Robertson, G. Abowd, S. Patel. "Using In-Home Power Lines to Extend the Range of Low-Power Wireless Devices," GVU Center, Georgia Institute of Technology, Technical Report GIT-GVU-09-07, April 2009.
- TR1. A. Striegel, M. Shorts, E. Stuntebeck, D. Salyers, J. Izaguirre. "GIPSE: A tool for Streamlining Management Aspects of the Grid for Simulation-based Research," Department of Computer Science and Engineering, University of Notre Dame, Technical Report TR04-16, April 2004.

### **Teaching**

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- ECE 4833: Mobile and Wireless Networks (3 credits)  
Georgia Institute of Technology  
Spring 2006  
Prepared and presented five lectures. Developed homework assignments and projects.
- ECE 3041: Instruments and Circuits Laboratory (2 credits)  
Georgia Institute of Technology  
Fall 2004, Spring 2005  
Managed laboratory sessions.
- EG 111/112: Introduction to Engineering (3 credits)  
University of Notre Dame  
Fall 2000, Spring 2001  
Managed laboratory sessions.

### **Relevant Graduate Coursework**

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#### **Electrical and Computer Engineering:**

- Advanced Computer Architecture
- Parallel and Distributed Computing
- Dependable Distributed Systems
- Digital Communications
- Coding Theory
- Wireless Networks
- Information Theory
- Satellite Communication and Navigation Systems
- Digital Signal Processing
- Electromagnetic Radiation and Antennas

#### **Computer Science:**

- Real-Time Systems
- Internet Architectures and Protocols
- Engineering Database Management

## Professional Activities

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- Association for Computing Machinery (ACM), Member
- Institute of Electrical and Electronics Engineers (IEEE), Member
- Upsilon Pi Epsilon, Member
- Eta Kappa Nu, Member
  
- IEEE Communication Letters, Reviewer
- IEEE Pervasive Computing, Reviewer
- Elsevier Information Sciences, Reviewer
- IEEE Wireless Communications and Networking Conference (WCNC 2006), Reviewer
- International Conference on Mobile and Ubiquitous Systems (MobiQuitous 2007), Reviewer
- International Conference on Pervasive Computing 2009 (Pervasive 2009), Reviewer
- International Conference on Ubiquitous Computing 2009 (UbiComp 2009), Student Volunteer Co-Chair and Reviewer
- IEEE International Symposium on Circuits and Systems 2009, Reviewer
- IEICE Transactions, Reviewer
  
- International Conference on Pervasive Computing 2007, Student Volunteer
- International Conference on Ubiquitous Computing 2008, Student Volunteer
- International Conference on Pervasive Computing 2009, Student Volunteer

## Invited Presentations

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- From Lab to Marketplace: How to Commercialize Your Research  
University of Notre Dame, Notre Dame, Indiana, November 2008
  
- Indoor Localization Systems for Ubiquitous Computing  
University of Notre Dame, Notre Dame, Indiana, November 2007

## Honors and Awards

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- Foley Scholarship Finalist, 2009
- 3<sup>rd</sup> Place, University of Oregon Lundquist Center for Entrepreneurship 2008 New Venture Championship Business Plan Competition
- Elevator Pitch Winner, Georgia Tech Business Plan Competition 2008
- 4<sup>th</sup> place, Georgia Tech Business Plan Competition 2008
- Hewlett-Packard design contest winner for best student project, "EtherBug: Covert Remote Monitoring of a Wired Network via Wireless", 2003
- Apple Worldwide Developer's Conference Scholarship recipient, 2003
- AT&T Merit Scholarship recipient, 1999
- University of Notre Dame Scholar award, 1999