

# CURRICULUM VITAE

## Edwin A. Hernandez-Mondragon, PhD

Address: 4890 NW 101st Ave  
Coral Springs, FL, 33076  
Home (561) 306 4996  
E-mail: edwin@edwinhernandez.com  
Web: <http://www.edwinhernandez.com/>

### Career Goals and Objectives

Assistant Professor in Computer Science and Engineering where I can teach undergraduate and graduate level classes and conduct research in wireless communication networks.

### Research Interests

Mobile Devices and Systems, User Interfaces in Mobile, Mobile Operating Systems, Mobility, Multiple-mode Wireless Roaming in 4G, Context-aware computing and pervasive spaces, Adaptive networking protocols and methods, Smart phones and wireless embedded software development, Personal Area Networking, Virtual Machines and Operating Systems.

### Academic Background

Ph.D, University of Florida, Gainesville, FL, Major: Computer Engineering,  
*Research areas:* Mobile Computing, Wireless Networks, Handoff Optimization, and Adaptable Network Protocols, Linear Prediction, Network Emulation  
*Dissertation:* An Adaptive Networking Protocol for Rapid Mobility Environments  
Advisor: Dr. Sumi Helal, August 2002

M.Sc., University of Florida, Gainesville, FL. Major: Electrical and Computer Engineering  
*Research areas:* Computer Networks and Intelligent and Information Systems, Thesis: Adaptive Sampling for Network Management  
Advisor: Dr. Alan D. George December 1999

B.Sc. Costa Rica Institute of Technology, Costa Rica, Major: Electronics Engineering  
Thesis: Monitoring system for a packet data network, RACSAPAQ  
Advisor: Dipl-Ing. Luis P. Mendez July 1995

## Teaching Experience

Teaching Assistant for Mobile Computing, *University of Florida*, Spring/Fall 2001

*Experience:* Mobile Computing is level-6000 graduate class. The class involves the discussion of research papers and a practical section where different wireless technologies are covered. In addition to my job duties, an automated examination tool was developed as additional class aid for grading. The class required J2ME/JSEE knowledge and the ability to support the class with Motorola smart phone development, plus all additional aid required to run the killer application competition sponsored by Motorola.

Teaching Assistant for Software Engineering, *University of Florida*, Fall 2000

*Experience:* The class was targeted to computer engineering seniors as an introduction to the software development cycle. Students carry-on a web-based project and deliver specific documents and specifications (architectural, design, UI), develop a prototype, schedule different tasks, and manage the project to be delivered on time. The TA assists technically and supervises their work, grades quizzes and exams

Teaching Assistant for Introduction to CIS/Java, *University of Florida*, Summer 2000

*Experience:* I taught an introductory lab session, graded quizzes, exams, and assignments. As an assistant I held different tutorial sessions on object oriented concepts and problem-solving skills.

Teaching Assistant for C++, *University of Florida*, Spring 2000

*Experience:* Grading and preparing assignments for the class.

Instructor at the Central American Internetworking Conference Sep'98

*Experience:* During the conference, I taught a 3-day intensive hands-on class on network security. I covered topics from: network intrusion detection, privacy, and authentication mechanisms

Instructor, *Central American Telecommunication Videoconferencing*, Summer 1996

*Experience:* Teaching Linux (Operating Systems), C++, and Networking seminars to engineers all over Central America (Remote teaching)

## Industry Experience

Rapid Mobile Technologies, Inc. CEO and Founder. Boca Raton, FL Rapid Mobile Technologies, Inc is the creator of MobileCAD (Patent 7,231,330) a mobile emulation environment for 3G/4G networks, propagation models simulation, virtual drive testing and RF scenarios. Prototype build using GSM/OpenBTS, but reusable for LTE/WiMAX/UMTS As well as, MobileIPP (Patent 7,697,508) for seamless mobility in Mobile IP networks. <http://www.ramobitech.com/>

Motorola Inc, Principal Staff Software Engineer, October'07 – July' 2010. Mobile Devices, Plantation, FL.

Google Android Platform/Application Development, Kernel-level prototyping, Data support, implemented HTTP Push/MMS, DRM content management, Webkit and Opera-based browsers, Lead discussions with customer Sprint/Nextel and Nextel International. I defined Android architecture and the concept of iDEN+5 which seeded Android in Plantation.

Sr. Software Staff Engineer, *Motorola, Mobile Devices*, Plantation, FL.  
August'05-October'07

*Experience:* Feature lead for Java Virtual Machine for Dual-mode devices, JSR implementation on BREW architectures, and iDEN/CDMA software interactions. As a feature lead, program management interactions, customer interactions, and 3<sup>rd</sup> party vendor relationships (ie Qualcomm)

Sr. Software Staff Engineer, November 2003-Augustt 2005. Motorola Networks, Platform design and development for Windows CE devices and Microsoft Smartphone Platforms, i930 mobile phone.

Program Manager, *Microsoft Corporation Windows Networking*, Redmond, WA,  
August'02-September'03

*Experience:* Feature lead for Bluetooth Personal Area Networking. Responsibilities driving Architecture, Design, Test Automation, security analysis for PAN, and driver testing over networking protocols such as IPv4 and IPv6 networks/

Program Manager Intern, *Microsoft Corporation, Windows Networking*, Redmond  
May'01-August'01

*Experience:* Wireless Zero-Configuration (WZC) for Windows XP Service Pack, Power Management algorithm using self-similar traffic modeling, and adaptive adjustment of the duty cycle. IEEE 802.11b/g/a services could be optimized to reduce power consumption from 0 to 80% depending upon network traffic characterization.

Entrepreneur/Lead Engineer, *COMPUNET*, Tegucigalpa, Honduras, April '97-November 2009

*Experience:* Webmaster and Senior system administrator, owner, and main developer, authentication services, security, networking.

Network Engineer, *Central American Telecommunication Commission*, Tegucigalpa, Honduras, August'95-May '97

*Experience:* Network Engineer, Videoconference systems (VTEL and H.323), software development for telecommunications and traffic management

Consultant, *United Nations Development Program (UNDP)*, Tegucigalpa, Honduras, November'96-May '97

*Experience:* Network security and consultant for the United Nations program in Honduras. Software auditing and network configuration

## Research Experience

Research Assistant, *University of Florida*, Gainesville, FL, January'00-August'02  
*Experience:* I investigated the effects of handoff and network mobility at different vehicular speeds. I used Mobile network simulation and emulation were important tools to study Mobile-IP and Layer-2/3 mobility protocols. I developed RAMON, Rapid Mobile Network Emulator, a device that emulates network layer mobility and programmatically replicates mobility conditions varying from signal strength, packet delay, BER, and speeds. RAMON uses real 802.11b Access Points, omni-directional antennas, embedded computers (e.g. PC-104) and custom-build control circuitry. RAMON also used a .NET interface to automatically create network topologies to be emulated. In depth routing protocols explored, IP tunnels, and low-level network device driver adjustments. I conducted extensive simulation work on ns-2

Research Assistant, *University of Florida*, Gainesville, FL September'97-December'99  
*Experience:* I joined the High-performance Computing and Simulation Research Lab. During my thesis work, I applied Fuzzy Logic in Network Management, focusing on how adaptive sampling could reduce captured statistics without losing important network behavior. Additionally, I researched ATM networks, SNMP (Simple Network Management Protocol), Virtual Interface Architecture (VIA) over Myrinet, CORBA, and High-performance Cluster Computing topics.

Program Manager Intern, *Microsoft Corporation*, Redmond, WA May'01-September'01  
*Experience:* As an intern, I investigated self-similarity and power management algorithms for Wireless Networks. I modeled the method how service time per packet could be estimated and used for QoS in ad-hoc and infrastructure networks.

Network Engineer: *Radiografica Costarricense, R&D*, Costa Rica. January'95-July'95  
*Experience:* I developed a microcontroller-based (x8051 and RUP1-51 micro-controllers) system to measure X.25 and PBX data traffic, Windows-based GUI, and X.25 frame captures

## Publications

E. Hernandez , "War of Mobile Browsers," IEEE Pervasive Computing, vol. 8, no. 1, pp. 82-85, Jan.-Mar. 2009

E. Hernandez, A. Ayyagari, "Heavily-tailed Network Traffic Modeling for Power Management", IEEE Workshop on Performance and Management of Wireless and Mobile Networks Australia, November 2005.

E. Hernandez, M. Chideste, and A. George, "Adaptive sampling for network management," Journal of Networks and System Management (JNSM), Vol. 9, No. 4, Dec 2001.

E. Hernandez, A. Helal, "Predictive Mobile IP for Rapid Mobility," IEEE Conf. Wireless Local Networks 2004, Tampa, FL

E. Hernandez, A. Helal "RAMON: An emulation approach," IEEE Conf. Local Computer Networks 2002, Tampa, FL

E. Hernandez, A. Helal, "Examining Mobile-IP Performance in Rapidly Mobile Environments: The Case of a Commuter Train," IEEE Conf. Local Computer Networks 2001, Tampa, FL, Nov 14-16, 2001.

A. Helal, S. Shah, E. Hernandez, "Mobility Benchmarking In Ad-Hoc Networks," The IPSJ Journal, Vol.43, No.11, June 2002. Approx. 15 pp.

S. Shah, E. Hernandez, A. Helal, "CAD-HOC: A CAD Like Tool For Generating Mobility Benchmarks In Ad-Hoc Networks," SAINT 2002, Japan, January 2002.

### **Thesis and Dissertation**

E. Hernandez "An adaptive protocol for rapid mobile environments," Ph.D Dissertation, University of Florida, August 2002.

E. Hernandez. "Adaptive sampling for network management," M.Sc. Thesis, University of Florida, Dec 1999.

E. Hernandez, Y. Lee. "Monitoring system of a packet data network," B.Sc. Thesis. ITCR, report, July 1995.

### **Technical Reports/Prior to publication**

E. Hernandez, A. Helal, "RAMON: A network emulation environment," CISE Department, University of Florida, 2005

E. Hernandez, A. Helal, "Ghost Mobile IP," CISE Department, University of Florida, 2005.

E. Hernandez, "DMTF: Authentication for Mobile Phones," Motorola, defensive publication, 2004

### **Patents and Innovations**

E. Hernandez, A. Ayyagari, et al. "Method and system for managing power consumption of a network interface module in a wireless computing device," Microsoft Corporation, **Issued US Pat. 7,564,810**

E. Hernandez, A. Helal, RAMON, "Rapid Mobility Network Emulator Method and System," University of Florida. **Issued US Pat. 7,231,330**

E. Hernandez, A. Helal, "System, Apparatus, and Method for Proactive Allocation of Wireless Communication Resources," University of Florida, **Issued US Pat. 7,697,508**

S. Poursabahian, E. Hernandez, et al, "Bluetooth PAN Driver," Microsoft Corporation, **Issued US Pat: 7,269,388**

A. Krantz, E. Hernandez, et al "Rules-based Network Selection Across Multiple Media," Microsoft Corporation, submitted 2004

V. Bhanu, E. Hernandez, et al, "Smart Scan for Bluetooth PAN Services," Microsoft Corporation.

E. Hernandez, K. Ardizzione. "Thumb-based User Interface for Camera Phones," Motorola, Inc, submitted 2005

E. Hernandez, "Secure USB Drive," Motorola Inc, submitted 2005

E. Hernandez, J. Tracy "Magnetic Connector", Motorola Inc, **Issued US Pat: 7,331,793**

## **Skills**

Platform experience: Linux-based: Android, LIMO, proprietary, Windows-based: Windows CE, J2ME-based: Blackberry RIM SDK, Motorola SDKs, Samsung SDK, IOS 4.0 iPad/iPhone/iPod (phoneGap), other: BREW, AMSSS/DMSS,

*Development languages:* Objective-C, Java, GNU C/C++, C#, VB.NET, Platform Builder, Java Micro Edition, J2SE, and MySQL.

*Other programming languages:* LISP, PROLOG, FoxPro, Pascal, Embedded design, Intel assembly code (i8051, x86), and TCL/TK.

*Internet Networking:* Wide experience with 2G/3G wireless standards (GSM/GPRS. UMTS, and CDMA 2000). Extensive experience with mobility protocols such as Cellular IP, HAWAII, Mobile IP, AODV. In-depth knowledge and understanding of IPv4 networks, as well as working knowledge on IPv6 protocols. Experience with windows NDIS driver design in Windows platforms including Network device driver testing with CETK and other automated tools. I have very detailed knowledge on BNEP and PAN profile as well as IEEE 802.11 standards. Practical experience administering and securing networking environments with Cisco IOS routers networks/firewalls, SNMP management.

*Scientific and engineering tools* : MATLAB, pSPICE, OrCAD, Network Simulator (ns-2), wide experience in electronic circuit design, digital design, and low-level debugging tools, including PC-104 and circuit design.

## **Honors and Awards**

- Member of Honduras Global, an elite group of successful Hondurans abroad.
- Fulbright-Scholar 1997-1999.
- Mention of honor in the Honduran National Science Contest, May 1997.
- Ranked 1st in undergraduate studies, Costa Rica Institute of Technology, July 1995.
- Four consecutive academic scholarships undergraduate work at Costa Rica Institute of Technology (ITCR), 1991-1995.
- High-Performance Computing and Simulation Lab student award, spring 1999.
- In March 2001, as a co-founder of E-melodies, runner-up during the *2001 UF Business Plan Competition* at the University of Florida and winner of the *2002 UF Business Plan Competition in Information Technology*.

## **Entrepreneurship**

**Rapid Mobile Technologies, Inc** Founder and CEO, 3G/4G Emulation and Mobile Independent Handoffs under patents 7,231,330, and 7,697,508 also known as MobileCAD and MobileIPP.

**UBIWIRELESS, LLC** Founder, A company dedicated to develop mobile and wireless technologies, including products as RxProfile™ (<http://rxprofile.net>), FUTMOB, and Ad2Fone, among others (Mobile Applications)

**Business Plan Competition 2002 Winner and 2001 Runner-up**, University of Florida Business Plan Competition 2001-2002.

**COMPUNET S. de R. L.** Founder and CTO, Honduras pioneer Internet Service Provider founded in 1997 completed operations in November 2009.

## **Personal Information**

Hobbies: Guitar playing, running, soccer, Real Estate Investments.  
Authorized to work in the United States.

## **Services and Memberships**

Organizing Committee, Mobile Mondays Miami, 2009-2010  
Hispanic Graduate Student Association, Finance chair, 2001-2002  
Hurricane Mitch Volunteer, Gainesville, FL. October 1998

ACM, IEEE member, dancing, soccer, and tae kwon do black belt  
St. Andrew's Catholic church, Life Teen, Coral Springs, FL, 2004-2005  
Member of Lovebags.org, 2007-2009  
Member of Society of Hispanic Professional Engineers, 2009-2010

## **Technical Program Committees/Reviewer for International Conferences**

Editorial Board Intl. Journal of Networks and Systems 2009-2011  
IEEE International Consumer Networks, 2011  
IEEE Broadnets 2008  
IEEE Wireless Networks Magazine, 2002-2003  
IEEE Transactions on Mobile Computing  
IEEE Wireless Local Networks 2005-2007  
IEEE Local Computer Networks 2007-2008  
IEEE GLOBECOM 2005  
IEEE SOUTHEAST CONFERENCE 2005

Panelist at 4G Wireless (Miami Beach, FL), several Mobile Monday events, and Mobile Commerce Latin America (2009).

*Tutorials:* Webconf Latino 2010, Tegucigalpa, Honduras.

Mobile Computing Platforms, Tegucigalpa, Honduras.

IEEE SOUTHEAST CONF 2005. Windows Cryptographic API, A Session  
Keys Paradigm.

*Keynote speaker* at "First Tuesday" Tegucigalpa, Honduras, and San Salvador, El Salvador.

## **Languages**

Fluent in Spanish and English. Basic knowledge of German and French

## **References**

Dr. Sumi Helal, Associate Professor  
Room 448, Computer Science & Eng. Bldg.  
P.O. Box 116125 , Gainesville , Florida 32611-6120  
Tel (352) 392-6845 Fax (352) 392-3238  
E-Mail: [helal@cise.ufl.edu](mailto:helal@cise.ufl.edu)      <http://www.cise.ufl.edu/~helal/>

Siamak Poursabahian,  
Lead Software Design Engineer,  
One Microsoft Way,  
Redmond, WA  
Tel: (425) 765 7777  
E-mail: [siamakp@microsoft.com](mailto:siamakp@microsoft.com)

Dr. Arun Ayyagari, Research scientist  
Researcher Boeing Phantom Works  
Tel: (206) 655 5996  
E-Mail: [Arun.Ayyagari@boeing.com](mailto:Arun.Ayyagari@boeing.com)