

# Miguel A. Erazo

Modeling and Networking Systems Research  
Group  
Department of Computer Science  
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## RESEARCH INTERESTS

My research goal is to design, build and evaluate network protocols and tools to improve the robustness and performance of wired and wireless networks. My current research interests include congestion control, MAC and routing protocols for wireless networks, simulation and emulation of large scale networks, and performance modeling of networked systems.

## EDUCATION

### **Ph.D. student, Computer Science (August 2007 - present)**

Florida International University, Miami FL 33199

CGPA: 3.9

Advisor: Dr Jason Liu

### **M.S. in Computer Engineering (August 2004 - June 2006)**

University of Puerto Rico, Mayagüez PR 33164

GPA: 4.0

*Thesis: " An Energy MAC Protocol for WSNs for Wide Area Large Scale Environmental Monitoring"*

### **B.E. in Electrical Engineering (January 1995 - December 1999)**

Universidad Mayor de San Andrés, La Paz-Bolivia

First in class with honors

*Thesis: " GSM Network for Nuevatel Enterprises in Oruro"*

## INDUSTRY AND RESEARCH EXPERIENCE

**Research Assistant**, Florida International University (Spring 2009 - Present)

Design and implementation of a network-based transport protocol for next-generation networks.

Research Advisor: Dr. Jason Liu

**Research Assistant**, Florida International University (Fall 2007 - Fall 2008)  
Design, implementation, and evaluation of a platform, based on virtualization techniques and emulation techniques, for evaluation of transport protocols.  
Research Advisor: Dr. Jason Liu

**Research Assistant**, University of Puerto Rico (Fall 2004 - Spring 2007)  
Design, implementation, and evaluation of a MAC protocol for Wireless Sensor Networks for Environmental Monitoring Purposes.  
Research Advisors: Dr. Yi Qian and Dr. Kejie Lu

**Support Engineer**, AES Communications Bolivia (La Paz-Bolivia, 2000-2004)  
Management, Provisioning and Troubleshooting of a xDSL platform. Additionally, I was in charge of the development of a Graphical Management platform for user's service performance monitoring purposes.

**Support Engineer**, Nuevatel PCS (La Paz-Bolivia, July 2000 - October 2000)  
Supervision and installation activities for installation of GSM equipment.

#### TEACHING EXPERIENCE

Summer 2009	<b>Lab Assistant:</b> CGS 2060 - Introduction To Microcomputers
Spring 2009	<b>Teaching and Lab Assistant:</b> COP 2210 - Introduction to Programming
Fall 2007	<b>Lab Assistant:</b> CGS 2518 - Data Analysis
1998	<b>Teaching Assistant:</b> ELE 601 - Digital Systems
1997	<b>Teaching Assistant:</b> MAT 102 - Calculus II

#### RELEVANT COURSE WORK

- Modeling and Simulation of Data Communication Systems
- Computer Networks
- Wireless Networks
- Algorithms
- Object Oriented Programming
- Usability Engineering
- Human-Computer Interaction
- Principles of DBMS

## SOFTWARE

C++	Linux TCP congestion control algorithms ported to PRIME network simulator
VBasic	Performance Monitoring Platform for xDSL users
C++ and Tcl	Code for the Simple Energy-Aware MAC Protocol (SEA-MAC) for the network simulator-2 (ns-2)
NesC	Implementation of SEA-MAC in mica2 motes

## COMPUTER SKILLS

**Platforms:** Windows, Linux

**Languages:** C, C++, C#, Java, Perl, Tcl, UNIX shell scripting

**DataBases:** Microsoft SQL Server, Access

**Web Tools:** HTML, Macromedia Dream Weaver

## PUBLICATIONS

### Book chapters

**M. A. Erazo**, Yi Qian, Kejie Lu, and Domingo Rodríguez, "Enabling Periodic Monitoring Applications in Wireless Sensor Networks: Design and Analysis of an Efficient MAC Protocol", in *Handbook on Sensor Networks*, Edited by Yang Xiao, Hui Chen, and Frank H. Li, to be published by World Scientific Publishing Co., 2010.

### Journal

**M. A. Erazo**, J. Liu, "A model-driven emulation approach to large-scale TCP performance evaluation", to be submitted for IJCNDS

### Conference

**M. A. Erazo**, Y.Li, J. Liu, "SVEET! A Scalable Virtualized Evaluation Environment for TCP", the 5th International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom'09).

**M. A. Erazo**, Y. Qian., K. Lu and D. Rodríguez, "Analysis and Design of a MAC Protocol for Wireless Sensor Networks with Periodic Monitoring Applications", Proceedings of MILCOM 2007, Orlando, FL, November 2007.

**M. A. Erazo**, Y. Qian, "SEA-MAC: Simple Energy Aware MAC Protocol for Wireless Sensor Networks for Environmental Monitoring", Proceedings of ISWPC'2007, San Juan, PR, February 2007.

**M. A. Erazo.**, Y. Qian, "An Energy-Efficient MAC Protocol for Wireless Sensor Networks for Wide Area Large Scale Environmental Monitoring", LACCEI 2006, June 2006.

### Technical Report

**M. A. Erazo**, S. Tang, Y. Qian, "Wireless Sensor Network Communication Architecture for Wide-Area Large Scale Soil, Moisture Estimation and Wetlands Monitoring", Network Communications Infrastructure Group, Department of Electrical and Computer Engineering, University of Puerto Rico at Mayagüez, May 2005.

## AWARDS AND GRANTS

### Awards

- **CyberBridges / GreenLight Fellow**, FIU, 2009
- **AGEP program Fellow**, UPRM, Puerto Rico, 2007-2008.
- **AGEP program Fellow**, UPRM, Puerto Rico, 2006-2007.
- **Outstanding student in Electronics Engineering**, College of Engineering, UMSA, La Paz, Bolivia, 2000.
- **Maximum Grades in term 1999-2000**, UMSA, La Paz, Bolivia, 2000.
- **Excellence Award**, Electronics Engineering, UMSA, La Paz, Bolivia, 2000.
- **Maximum Grades in term 1998-1999**, UMSA, La Paz, Bolivia, 1999.
- **Excellence Award**, Electronics Engineering, UMSA, La Paz, Bolivia, 1999.
- **Best Student**, Electronics Engineering, UMSA, La Paz, Bolivia, 1998.

### Student Travel Grants

- **FIU-SCIS Graduate Committee Travel Award** for TRIDENTCOM'09.
- **Travel Grant** for MILCOM'07.
- **Travel Grant** for ISWPC'07.

## PROFESSIONAL ACTIVITIES

### Reviewer

ACM/IEEE/SCS Workshop on Principles of Advanced and Distributed Simulation (PADS) 2009.

ACM/IEEE/SCS Workshop on Principles of Advanced and Distributed Simulation (PADS) 2008.

IEEE International Symposium on Modelling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS 2010)

Military Communications Conference (MILCOM 2007)

**Professional Organizations**  
IEEE member

REFERENCES

Available upon request