Miguel A. Pérez-Xochicale

Research Interests

I am generally interested in the field of Human Activity Recognition and Human-Robot Interaction. As a doctoral researcher, I am specifically gaining a deeper understanding of the variability of simple and complex human movements so as to create novel analysis and interpretation of signals from inertial sensors.

Education

Nov. 2014 – Present **University of Birmingham**, *PhD in Electronic, Electrical and Computer Engineering*, Birmingham, UK, .
Thesis: Automatic Indentification of Movement Variability.
Advisors: Chris Baber

Sep. 2004 – Sep. 2006 **Instituto Nacional de Astrofísica, Óptica y Electrónica**, *Master Degree in Electronics*, Puebla, Mexico, .
Thesis: Digital Filter FIR with less multipliers
Advisor: Gordana Jovanovic Dolecek
Professional license: 6294064

Aug. 1999 – Sep. 2004 **Technological Institute of Puebla**, *Bachelor degree in Electronic Engineering*, Puebla, Mexico, .
Thesis: Speed control of a Robot of two degrees of freedom.
Professional license: 4907567

Experience

Professional

February 2013 – August 2013 **Research Assistant at the Robotics Laboratory** , *Instituto Nacional de Astrofísica, Óptica y Electrónica*, Tonantzintla, Mexico.
A Human-Robot Interaction Demo Dance
Detailed achievements:
- It was implemented a Human-Robot Interaction Demo Dance which is based on a ZSTAR3 Radio Frequency single three-axis accelerometer and a Patrolbot mobile robot. We explored four gestures wearing the accelerometer in the left writs in order to create simple dance activities with the Patrolbot mobile robot.

January 2012 – January 2013 **Invited Lecturer**, *Madero University*, Puebla, Mexico.
Mechatronic Laboratory Proposal
Detailed achievements:
- It was proposed a design of a Mechatronic Laboratory that includes a benchmark for Mechatronic's laboratories in each continent, Mexico and Puebla. The proposal also includes a 3D layout design and minimal requirements for the laboratory of hardware and software.

August 2003 – March 2004 **Profesional Resident**, *Instituto Nacional de Astrofísica, Óptica y Electrónica*, Tonantzintla, Mexico.
Speed control of a two degrees of freedom Robot
Detailed achievements:
- A speed control was implemented with both Microcontrollers PIC 16F84 and 16F877 to vary the speed of DC motors and controlled with Virtual Instruments on LabVIEW using Serial Communication RS-232.

Teaching

August 2013– December 2013 **Hight School Teacher**, *TECMilenio University*, Puebla,Mexico.
Courses: Information Technology, Euclidian Geometry and Microsoft Office Access

Spring 2012 – Autumn 2012 **Research Assistant Lecturer in Mechatronic Engineering**, *Madero University*, Puebla, Mexico.
Courses: Fundamentals of Automation, Industrial Electronics, Research Projects II, Metrology, Physics, Computer Integrating Manufacturing, and Power Electronics

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Spring 2007 – Spring 2012 **Research Assistant Lecturer in Electronic Engineering**, *University Iberoamericana Puebla*, Puebla, Mexico.
Courses: Stochastic Processes Course, Digital Signal Processing, Noise and Stochastic Processes and Analog Filters

August 2006 – June 2007 **Research Assistant Lecturer in Mechatronic and Electric Engineering**, *Technological Institute Superior of Atlixco*, Atlixco, Mexico.
Courses: Electronic I, Numerical Methods, and Electricity and Magnetism. (January-June 2007.) Electricity and Magnetism, and Electricity and Industrial Electronics (August-December 2006)

Awards and Honours

- A prototype of a low-cost robot was selected amoung 125 applications which were received from 35 countries and presented at an international public entrepreneurship program (MECATE 2015). [20-24 July 2015]
- Full PhD Degree Scholarship in the UK from November 2014 to November 2017 from the Mexican National Council on Science and Technology (CONACyT).
- First place at the Mexican Tournament of Robotics 2013 in the cathegory at HOME. It was presented a Human-Robot Interation (HRI) Dance Demo. [25-27 April 2013]
- Full Master Degree Scholarship in Mexico from September 2004 to September 2006 from the Mexican National Council on Science and Technology (CONACyT).

Languages

Spanish — Native tongue

English — IETLS Band Score 6.0: Listening 6.0, Reading 7.0, Writing 6.0, Speaking 5.5. *11/01/14*

Computer skills

Operative Systems — Windows, GNU-Linux Ubuntu and Debian

Programing and markup languages — R, GNU-Octave, GNU-emacs, MATLAB, C++, Kdevelop, Code Composer Studio, ng-spice, LabVIEW, Arduino, Processing, LaTeX, and beginner at Robot Operating System (ROS).

Extracurricular Activities

- I am developing a workshop to teach children how to build low cost robots for outreach communities at the University of Birmingham. [January-May 2016]
- I founded LibrE Robotics, a non-profit organization, in June 2013 to transfer knowledge in Robotics for children to build conditions for a better world.
- I adviced different students projects at Madero University on November 2012 : Haptic Referee Glove Lightmetre and Pychometre using Arduino, Smart Irrigation, Persistent Of Vision Bicycle Wheel and a Delta Robot Structure.

Publications

G. Jovanovic-Dolecek and Miguel A. Perez-Xochicale. *One Method for Design of Wideband FIR Filters Without Multipliers*. Puebla, Mexico, February 2006. Proc. of the 16th IEEE Conference on Electronics, Communications and Computers, CONIELECOMP 2006, published by IEEE Computer Society, N0. 0-7695-2505-9/06. 2006 IEEE.

Miguel A. Perez-Xochicale and G. Jovanovic-Dolecek. *A New Method for Design Narrow Band Lowpass FIR Filters Using a Scale Function*. Veracruz, Mexico, November 2006. 2nd International Conference on Electronic Design, Proc. edited by Victor Champac at all, ISBN 968-9085-01-8, pp.85-89,.

Miguel A. Perez-Xochicale and G. Jovanovic-Dolecek. *A New Method for Design Narrow Band Lowpass FIR Filters Using a Scale Function*. Chihuahua, Mexico, August 2006. 28th International Congress of Electronic Engineering, Proc edited by ITCH Chiuahua, 2006, pp.165-168,.

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