Miguel P Xochicale

Contact

☎ +44 (0) 121 414 314 1 (UK)
✉ perez.xochicale@gmail.com
⌂ http://mxochicale.github.io

🐦 @_mxochicale
○ @mxochicale
ORCID: 0000-0002-8225-7517

Research Interests

I am interested in the fields of Human-Robot Interaction and Human Activity Recognition. Specifically, I am gaining deeper understanding on the automatic quantification of movement variability and time-varying facial expressions using chaos and nonlinear dynamics time series analysis and deep learning.

Education

11/2014 – 11/2018	**Ph.D. in Human-Robot Interaction**, *University of Birmingham*, UK. Thesis: Automatic Classification of Movement Variability in the context of Human-Robot Interaction 🎲 Advisors: Professor Chris Baber and Professor Martin Russell
09/2004 – 09/2006	**M.Sc. in Electronics**, *Instituto Nacional de Astrofísica, Óptica y Electrónica*, México. Thesis: Digital Filter FIR with less multipliers 📄 🎲 Advisor: Gordana Jovanovic Dolecek
08/1999 – 09/2004	**B.Eng. in Electronics**, *Instituto Tecnológico de Puebla*, México. Thesis: Speed control in LabVIEW for a two-degrees-of-freedom Robot. 📄 🎲 Advisor: M.Sc. José Esteban Torres León.

Publications

MP Xochicale and C Baber. *Quantifying the Inherent Chaos of Human Movement Variability* . Madrid, Spain, June 2018. The 15th Experimental Chaos and Complexity Conference (ECCC2018), 🎲 (to appear).

MP Xochicale and C Baber. *Towards the Analysis of Movement Variability of Facial Expressions with Nonlinear Dynamics.* Glasgow, Scotland, UK, April 2018. The 7th Consortium of European Research on Emotion Conference (CERE2018), 🎲 (to appear).

MP Xochicale and C Baber. *Towards the Analysis of Movement Variability in Human-Humanoid Imitation Activities.* Bielefeld, Germany, October 2017. The 5th International Conference on Human Agent Interaction (HAI2017) 📄 🖼 🎲.

MP Xochicale, C Baber, and M Oussalah. *Towards the Quantification of Human-Robot Imitation Using Wearable Inertial Sensors.* Vienna, Austria, March 2017. The 12th Annual Conference on Human-Robot Interaction (HRI2017) 📄 🖼 🎲.

M Xochicale, C Baber, M Oussalah, and Smith. *Analysis of the Movement Variability in Dance Activities using Wearable Sensors.* La Granja, Segovia, Spain, October 2016. The 2nd International Symposium on Wearable Robotics (WeRob16) 📄 🖼 🎲.

M Xochicale, C Baber, and M Oussalah. *Understanding Movement Variability of Simplistic Gestures Using an Inertial Sensor.* Oulu, Finland, June 2016. The 5th ACM International Symposium on Pervasive Displays 📄 🖼 🎲.

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. The 2nd International Conference on Electronic Design, Proc. edited by Victor Champac at all, ISBN 968-9085-01-8, pp.85-89 📄 🎲.

Teaching Experience

01/2018–04/2018	**Teaching Associate**, *University of Birmingham*, UK. Engineering Maths 2. Lecturer: Professor Martin Russell, Dr Carl Anthony
08/2017–12/2017	**Teaching Associate**, *University of Birmingham*, UK. Engineering Maths 2. Lecturer: Professor Martin Russell
08/2017–12/2017	**Teaching Associate**, *University of Birmingham*, UK. Computing for Engineering. Lecturer: Dr Sridhar Pammu
01/2017–06/2017	**Teaching Associate**, *University of Birmingham*, UK. Matlab Laboratories. Lecturer: Dr Edward Tarte

08/2016–12/2016	**Teaching Associate**, *University of Birmingham*, UK. Computing for Engineering. Lecturer: Dr Sridhar Pammu
10/2014–12/2014	**Teaching Associate**, *University of Birmingham*, UK. Small Embedded Systems. Lecturer: Professor Chris Baber
08/2013–12/2013	**Teacher**, *Bilingual Hight School at TECMilenio University*, Puebla,México. Courses: Information Technology ⬀, Euclidian Geometry ⬀ and Microsoft Office Access ⬀
Spring 2012 – Autumn 2012	**Invited Lecturer in Mechatronic Engineering**, *Universidad Madero*, Puebla, México. Courses: Fundamentals of Automation ⬀, Industrial Electronics ⬀, Research Projects ⬀, Metrology ⬀, Physics ⬀, Computer Integrating Manufacturing, and Power Electronics
Spring 2007 – Spring 2012	**Invited Lecturer in Electronic Engineering**, *Universidad Iberoamericana Puebla*, México. Courses: Stochastic Processes Course ⬀, Digital Signal Processing ⬀ and Analog Filters.
08/2006 – 06/2007	**Invited Lecturer in Mechatronic Engineering**, *Instituto Tecnológico Superior de Atlixco*, México. Courses: Electronics I, Numerical Methods, and Electricity and Magnetism. (January-June 2007.) Electricity and Magnetism, and Electricity and Industrial Electronics (August-December 2006)

Professional Experience

02/2013 – 08/2013	**Research Assistant**, *INAOE's Robotics Laboratory*, México. Achievements: I developed a Human-Robot Interaction Demo for dancing activities based on a Patrolbot mobile robot and a ZSTAR3 Radio Frequency single three-axial accelerometer. For the demo, I explored four hand gestures where user's worn the accelerometer at his/her left wrist in order to create simple dance activities with the mobile robot ⬀.
01/2012 – 01/2013	**Invited Lecturer**, *Universidad Madero*, Puebla, México. Achievements: I proposed and supervised the following students' projects: Haptic Referee Glove, Lightmetre and Pychometre using Arduino, Smart Irrigation, Persistent Of Vision Bicycle Wheel and a Delta Robot Structure ⬀. Additionally, I proposed and designed a Mechatronic Laboratory which includes: (i) a benchmark for laboratories in mechatronics in México and Puebla, (ii) a 3D layout design and (iii) minimal requirements of hardware and software for the laboratory ⬀.
09/2003 – 03/2004	**Research Internship**, *INAOE*, México. Achievements: I implemented a speed control for a two-degree-of-freedom robot with microcontrollers PIC 16F84 and 16F877 that made communication via RS-232 using Virtual Instruments on LabVIEW.

Awards and Honours

|	
11/01/2017	My work "Towards Healthy Ageing with Humanoid Robots" was selected for a talk at the second forum of Mexican Talent, Innovation Match MX 2017, ⬀ 🗎
16-18/06/2016	I won a shared first prize for presenting one of the two best posters at the XIV Symposium of Mexican Students in the UK at University of Edinburgh. ⬀
20-24/07/2015	My project of a low-cost robot was selected among 125 applications received from 35 countries and presented at the first international public entrepreneurship program in Mexico (MECATE 2015). ⬀ ▶
11/2014-11/2018	Full Ph.D. Scholarship in the UK from the Mexican National Council on Science and Technology (CONACyT).
25-27/05/2013	Markovito's team, based on a Patrolbot mobile robot, won the first place at the Mexican Tournament of Robotics 2013 in the category at HOME where I presented a Human-Robot Interaction Dance Demo. ▶
09/2004-09/2006	Full M.Sc. Scholarship in México from the CONACyT.

Languages

Spanish	Native	
English	Fluent	*IETLS Band Score 6.0, January 2014*

Technical Skills

General	Inertial Measurement Units (data collection and analysis); Graphic design (Inkscape, GIMP); Artificial Neural Networks (e.g., TensorFlow).
Programming	R, python, Robot Operating System (ROS), C, C++, Arduino, Processing, LaTeX, the shell, vim, GNU-emacs, GNU-Octave, MATLAB, LabVIEW, and open-source enthusiast GitHub: github.com/mxochicale

Scientific Engagement

2017–2018	**Webmaster and contributor of Machine Learning for Mexico**, GitHub: 🐙 , Website: ⬀.
2017–2018	**Coordinator of the Science Seminars for the Mexican Society**, University of Birmingham, UK, GitHub: 🐙, Website: ⬀.
2014-2018	**Presenting Applications of Human-Robot Interaction at the Undergraduate Open Days**, University of Birmingham, UK.