

Personal Details & Contact

Full name Miguel Angel Pérez Xochicale
Date of birth 29-09-1981
Citizenship Mexican

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Personal statement

I have completed a Ph.D. in Computer Engineering. I have 20 years experience in electronics, mechatronics, signal processing, and human-robot interaction. I am a highly motivated person who aspires to understand and to apply tools from nonlinear dynamics and deep learning in the context of well-being. Principles of hard and collaborative work, scientific integrity, and human kindness have guided me in all my life decisions.

Education

- 11/2014 – 11/2018 **Ph.D. in Human-Robot Interaction**, *University of Birmingham*, UK.
Thesis: Nonlinear Analyses to Quantify Movement Variability in Human-Humanoid Interaction. 📄 🐼 </>
Supervisors: Professor Chris Baber and Professor Martin Russell
Thesis submission day: 26th October 2018, viva: 11th January 2019
- 09/2004 – 09/2006 **M.Sc. in Signal Processing**, *National Institute of Astrophysics, Optics and Electronics*, México.
Thesis: Digital Filter FIR with less multipliers 📄 🐼
Supervisor: Dr. Gordana Jovanovic Dolecek
- 08/1999 – 09/2004 **B.Eng. in Electronics**, *Instituto Tecnológico de Puebla*, México.
Thesis: Speed control for a two-degrees-of-freedom Robot in LabVIEW. 📄 🐼
Supervisor: M.Sc. José Esteban Torres León.

Technical Skills











- General GNU/Linux Operating System user (e.g. OpenSuse, Debian and Ubuntu)[2005-present] Single-board computers and microcontrollers (e.g. RaspberryPi, BeagleBone, Arduino and PIC)[2010-present], Inertial Measurement Units (e.g. calibration, collection and data analysis)[2013-present], Graphic design (e.g. Inkscape, GIMP)[2014-present], Web design (e.g. Github pages, Jekyll)[2015-present], and Artificial Neural Networks (e.g. TensorFlow and PyTorch)[2017-present].
- Programming R[2013-present], python[2014-present], Robot Operating System (ROS)[2016-present], GNU-Octave (or MatLab)[2009-present], L^AT_EX[2006-present], C and C++[2015-present], Processing[2012-present], the shell[2010-present], GNU-emacs[2010-present], vim[2016-present], pandoc[2017-present], and open-source enthusiast at GitHub (@mxochicale)[2015-present].

Professional Experience

- 02/2013 – 08/2013 **Research Assistant in Robotics**, *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 the user worn the accelerometer at his/her left wrist in order to create simple dance activities with the mobile robot. (Documents and code: 📄).
- 01/2012 – 01/2013 **Lecturer in Mechatronic Engineering**, *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 (Project descriptions and code: 📄). 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 (Document, slides and layout: 📄).
- 09/2003 – 03/2004 **Research Internship in Robotics**, *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.

Teaching Experience




- 08/2014–04/2018 **Teaching Associate**, *University of Birmingham*, UK.
(01/2018–04/2018) Engineering Maths 2. Lecturers: Professor Martin Russell, Dr Carl Anthony
(08/2017–12/2017) Engineering Maths 2. Lecturer: Professor Martin Russell
(08/2017–12/2017) Computing for Engineering. Lecturer: Dr Sridhar Pammu
(01/2017–04/2017) Matlab Laboratories. Lecturer: Dr Edward Tarte
(08/2016–12/2016) Computing for Engineering. Lecturer: Dr Sridhar Pammu
(08/2014–12/2014) Small Embedded Systems. Lecturer: Professor Chris Baber




- 08/2013–12/2013 **Lecturer**, *Bilingual High School TECMilenio University*, Puebla, México.
Courses: Information Technology , Euclidian Geometry  and Microsoft Office Access 
- 2012 **Lecturer in Mechatronic Engineering**, *Universidad Madero*, Puebla, México.
Courses: Fundamentals of Automation , Industrial Electronics , Research Projects , Metrology , Physics , Computer Integrating Manufacturing, and Power Electronics
- 2007 – 2012 **Lecturer in Electronic Engineering**, *Universidad Iberoamericana Puebla*, México.
Courses: Stochastic Processes Course , Digital Signal Processing  and Analog Filters.
- 08/2006 – 06/2007 **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)




Open Access Publications (OA)

Peer-Reviewed



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

[OA] Xochicale M, Baber C, and Oussalah M. *Analysis of the Movement Variability in Dance Activities using Wearable Sensors*. Segovia, Spain, October 2016. The 2nd International Symposium on Wearable Robotics (WeRob16)   .




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

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

Preprints








[OA] Xochicale M and Baber C. *Strengths and weaknesses of Recurrence Quantification Analysis in the context of human-humanoid interaction*. October 2018. ArXiv e-prints  .

Non-Peer Reviewed














[OA] Xochicale M and Baber C. *Quantifying the Inherent Chaos of Human Movement Variability*. Madrid, Spain, June 2018. 15th Experimental Chaos and Complexity Conference (ECCC15)   .

[OA] Xochicale M and Baber C. *Towards the Analysis of Movement Variability for Facial Expressions with Nonlinear Dynamics*. Glasgow, Scotland, UK, April 2018. The 7th Consortium of European Research on Emotion Conference (CERE2018)   .

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 the best poster award 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 Ph.D. scholarship by the Mexican National Council on Science and Technology.
- 25-27/05/2013 Markovito’s team 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 M.Sc. scholarship by the Mexican National Council on Science and Technology.

Extra Activities

- 2013–2018 **Founder of LibrE Robotics**, a non-profit organization aiming to freely transfer knowledge in Robotics to Mexican children, GitHub: , Website: .
- 2017–2018 **Contributor and webmaster of Machine Learning for Mexico**, GitHub: , Website: .
- 08/2014–06/2018 **Outreach activities and scientific engagement**, *University of Birmingham, UK*.
(05–2018) Finalist at the Three Minute Thesis Competition 2018. Video:  and GitHub: 
(2015–2018) Research Poster Conference for (2015) , (2016) , and (2018) . GitHub: 
(2014–2018) Presenting Demos of Human-Robot Interaction at the Undergraduate Open Days. GitHub: 
(2017–2018) Coordinator of the Science Seminars for the Mexican Society. GitHub: , Website: .