

JESÚS GARCÍA GUZMÁN

CURRICULUM VITAE

Full-time Professor of Electronics in the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana, Mexico, and Associate Fellow of the School of Engineering, University of Warwick, United Kingdom, with research interest in ASIC chip design, intelligent sensor networks, and advanced electronic engineering systems.

CONTACT DETAILS

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EDUCATION

DOCTOR OF PHILOSOPHY (PHD) IN ENGINEERING
University of Warwick, UK, 2005

MSC IN ADVANCED ENGINEERING, WITH DISTINCTION
University of Warwick, UK, 1999

MSC IN HIGHER EDUCATION, WITH HONOURS
ICEST, México, 1998

PG DIPLOMA IN INDUSTRIAL AUTOMATION
FESTO-Universidad Veracruzana, México, 1996

PG DIPLOMA IN POWER ELECTRONICS
UNAM, México, 1980

PG DIPLOMA IN MATHEMATICS FOR UNDERGRADUATE TEACHING
UAEM, México, 1979

BSC IN MECHANICAL AND ELECTRICAL ENGINEERING
Universidad Veracruzana, México, 1978

PROFESSIONAL CERTIFICATION

IEEE EFFECTIVE REMOTE INSTRUCTION



PUBLICATIONS

Daniel Salazar-Pérez, Mario Ponce-Silva, Juan Antonio Aqui-Tapia, **Jesús García-Guzmán** and J. Humberto Pérez-Cruz, "Effects of the LED modelling on the Output Capacitance of Power Converters", *IET Power Electronics*, *in press*.

Online ISSN: 1755-4543

Print ISSN: 1755-4535

Juan Fernando García-Mathey, **Jesús García-Guzmán** and Luz Aurora García-Mathey, "Perspectives of distributed and off-grid systems for the delivering of electricity to rural areas", *2019 IEEE International Conference on Engineering Veracruz (ICEV)*, Boca del Río, Veracruz, México, October 2019, pp. 1-5.

ISBN: 978-1-7281-3304-1

<https://doi.org/10.1109/ICEV.2019.8920452>

Omar López-Rojas and **Jesús García-Guzmán**, "A review on quantum dot solar cells: properties, materials, synthesis and devices", *2019 IEEE International Conference on Engineering Veracruz (ICEV)*, Boca del Río, Veracruz, México, October 2019, pp. 1-5.

ISBN: 978-1-7281-3304-1

<https://doi.org/10.1109/ICEV.2019.8920641>

Alfredo Ramírez-Ramírez, V.F. Jiménez Reyes, Jorge Alberto Vélez-Enriquez, Simón Leal-Ortiz, **Jesús García-Guzmán**, "Study of harmonic content and influence of common electrical appliances used in residential installations", *2019 IEEE International Conference on Engineering Veracruz (ICEV)*, Boca del Río, Veracruz, México, October 2019, pp. 1-8.

ISBN: 978-1-7281-3304-1

<https://doi.org/10.1109/ICEV.2019.8920620>

Jesús García-Guzmán, Daniel Salazar-Pérez, Gisell Celis-Ronzón, Jorge A. Vélez-Enríquez, "Design and Experimental Prototype Testing of a Hybrid Digital Theremin System", *Proceedings of the IEEE International Conference on Consumer Electronics ICCE-Berlin 2018*, Berlin, September 2018.

ISSN: 2166-6814

ISBN: 978-1-5386-6095-9

<https://doi.org/10.1109/ICCE-Berlin.2018.8576221>

Víctor M. Tlapa-Carrera, Víctor M. Jiménez-Fernández, Héctor Vázquez-Leal, Uriel A. Filobello-Nino, **Jesús García-Guzmán**, Francisco J. Castro-González, "Modelling of three-dimensional surfaces using high-level canonical piecewise-linear functions in cylindrical coordinates", Springer International Publishing: *Computational and Applied Mathematics* 37 (2018) pp. 5500-5513.

Online ISSN: 1807-0302

Print ISSN: 0101-8205

<https://doi.org/10.1007/s40314-018-0647-x>

Jesús García-Guzmán, Farah H. Villa-López, Jorge A. Vélez-Enríquez, Luz A. García-Mathey and Alfredo Ramírez-Ramírez, "Remote Laboratories for Teaching and Training in Engineering", in *Design, Control and Applications of Mechatronic Systems in Engineering*, Sahin Yildirim (Ed.), InTech, 2017, pp. 47-63.

ISBN 978-953-51-3126-7

Print ISBN 978-953-51-3125-0.

Jesús García-Guzmán, Naara González Viveros, Héctor Cerecedo Núñez, "Comparative analysis of optoelectronic properties of glucose for non-invasive monitoring", in *Emerging Challenges for Experimental Mechanics in Energy and Environmental Applications, Proceedings of the 5th International Symposium on Experimental Mechanics and 9th Symposium on Optics in Industry (ISEM-SOI) 2015*, Amalia Martínez-García, Cosme Furlong & Ryszard J. Pryputniewicz, Eds., Switzerland: Springer International Publisher, 2017, pp. 55-63.

ISSN 2191-5644

Print ISBN: 978-3-319-28511-5

Online ISBN 978-3-319-28513-9

[DOI 10.1007/978-3-319-28513-9_8](https://doi.org/10.1007/978-3-319-28513-9_8)

R. M. Rodríguez Méndez, H. H. Cerecedo-Nuñez, **J. García-Guzmán**, P. Padilla-Sosa, and M. A. Basurto-Pensado, "Spectral switch for butane/propane gas mixture detection", in *Advanced Photonics 2016 (IPR, NOMA, Sensors, Networks, SPPCom, SOF)*, OSA Technical Digest (online) (Optical Society of America, 2016), paper JT4A.25.

ISBN: 978-1-943580-14-9

[DOI 10.1364/IPRSN.2016.JT4A.25](https://doi.org/10.1364/IPRSN.2016.JT4A.25)

N. González-Viveros, H. H. Cerecedo-Nuñez, **J. García-Guzmán**, and P. Padilla-Sosa, "Transmittance and reflectance measurements of anhydrous glucose concentrations on solutions", in *Advanced Photonics 2016 (IPR, NOMA, Sensors, Networks, SPPCom, SOF)*, OSA Technical Digest (online) (Optical Society of America, 2016), paper SeW2F.7.

ISBN: 978-1-943580-14-9

[DOI 10.1364/SENSORS.2016.SeW2F.7](https://doi.org/10.1364/SENSORS.2016.SeW2F.7)

Griselda García-Santiago, Víctor M. Jiménez-Fernández, **Jesús García-Guzmán**, Farah H. Villa-López, Héctor Vázquez-Leal, Uriel Filobello-Nino and Norberto Carrillo-Ramón, "Embedded microcontroller system for piecewise-linear laser projection", *Proceedings of the IEEE International Conference on Consumer Electronics ICCE-Berlin 2016*, Berlin, September 2016, pp. 241-244.

ISSN: 2166-6814

Print ISBN: 978-1-5090-2097-3

Online ISBN 978-1-5090-2096-6

[DOI 10.1109/ICCE-Berlin.2016.7684765](https://doi.org/10.1109/ICCE-Berlin.2016.7684765)

Jesús Antonio Camarillo Montero, Alfredo Ramírez Ramírez, **Jesús García Guzmán**. "Propuesta de mejoramiento del alumbrado público en comunidades", Editorial Académica Española, 2016, 68 pp.

ISBN 978-3-8417-5342-7

Jesús García-Guzmán, Adriana Mendoza-Gutiérrez, Jorge A. Vélez-Enríquez, Alfredo Ramírez-Ramírez, Farah H. Villa-Lopez, "Multiphysics modelling of a resistive polymeric sensor for VOC", *Proceedings of the 2015 IEEE International Conference on Industrial Technology ICIT 2015*, Sevilla, March 2015, pp. 3361-3364.

Electronic ISBN: 978-1-4799-7800-7

[DOI 10.1109/ICIT.2015.7125597](https://doi.org/10.1109/ICIT.2015.7125597)

Jesús García-Guzmán, Naara González Viveros, Héctor H. Cerecedo Núñez, “Comparative analysis of optoelectronic properties of glucose for non-invasive monitoring”, *Proceedings of the 5th International Symposium on Experimental Mechanics*, Springer International Publishing AG, Guanajuato, México, August 2015.

Jesús García-Guzmán, Edgar O. Moctezuma-Monge, Farah H. Villa-López, “FPGA implementation of a smart home lighting control system”, *Proceedings of the IEEE International Conference on Consumer Electronics ICCE-Berlin 2014*, Berlin, September 2014, pp. 419-420.

ISSN: 2166-6814

Electronic ISBN: 978-1-4799-6165-8

DOI 10.1109/ICCE-Berlin.2014.7034320

Jesús García-Guzmán, Hugo Rafael Morales-Andrade and Farah Helúe Villa-López, “FPGA implementation of a smart control system for traffic lights in a 4-way intersection”, *Proceedings of the XIII Congreso Nacional de Ingeniería Eléctrica y Electrónica del Mayab CONIEEM 2013*, Mérida, México, April 2013, pp. 701-709.

ISSN: 1665-0271

Alfredo Ramírez-Ramírez, Jorge A. Vélez Enríquez, **Jesús García-Guzmán**, Diego A. Zamora-García y Farah H. Villa-López, “Monitoreo, protección y control remoto de dos motores eléctricos mediante instrumentación virtual”, *Proceedings of the XIII Congreso Nacional de Ingeniería Eléctrica y Electrónica del Mayab CONIEEM 2013*, Mérida, México, April 2013, pp. 553-560.

ISSN: 1665-0271

Farah Helúe Villa-López, **Jesús García-Guzmán**, Jorge Vélez Enríquez, Simón Leal-Ortiz and Alfredo Ramírez-Ramírez, “Electropneumatic system for industrial automation: a remote experiment within a web-based learning environment”, *Procedia Technology* 7 (2013) pp. 198-207.

ISSN: 2212-0173

Farah H. Villa-López, **Jesús García-Guzmán**, Alfredo Ramírez-Ramírez, Jorge A. Vélez Enríquez, “Remote laboratories for teaching and training in engineering”, accepted for presentation in the *Eleventh Latin American and Caribbean Conference for Engineering and Technology LACCEI 2013*, Cancún, México, August 2013.

Su-Lim Tan, **Jesús García-Guzmán**, Farah-Helúe Villa-López, “A wireless body area network for pervasive health monitoring within smart environments”, *Proceedings of the 2012 IEEE International Conference on Consumer Electronics ICCE-Berlin 2012*, Berlin, September 2012, pp. 47-51.

Electronic ISSN: 2166-6822

Print ISSN: 2166-6814

CD-ROM ISSN: 2166-6814

Print ISBN: 978-1-4673-1546-3

Electronic ISBN 978-1-4673-1547-0

CD-ROM ISBN: 978-1-4673-1545-6

DOI 10.1109/ICCE-Berlin.2012.6336471

Jesús García-Guzmán, Farah H. Villa-López, Francisco H. Silva-Del-Rosario, Alfredo Ramírez-Ramírez, Jorge Vélez-Enríquez and Ervin J. Álvarez-Sánchez, "Virtual environment for remote access and automation of an AC motor in a web based laboratory", *Procedia Technology* 3 (2012) pp. 224-234.

ISSN: 2212-0173

Jesús García-Guzmán, Farah H. Villa-López, Jorge A. Vélez-Enríquez y Alfredo Ramírez-Ramírez, "A wave digital filter model of a vibrating piano string based on the one-dimensional wave equation", *Proceedings of the 2nd International Congress on Instrumentation and Applied Sciences ICIAS 2011*, Puebla, México, October 2011.

ISBN 978-607-02-2298-6.

Su Lim Tan, Nguyen Ha Duy, **Jesús García Guzmán**, Francisco García Orduña, "A wireless activity monitoring system for monkey behavioural study", *Proceedings of the 2011 IEEE 15th International Symposium on Consumer Electronics ISCE 2011*, Singapore, June 2011, pp. 40-45.

ISSN: 0747-668X

ISBN: 978-1-61284-843-3

Jesús García Guzmán, Hugo R. Morales Andrade, Alfredo Ramírez-Ramírez y Jorge A. Vélez Enríquez, "Design and simulation of a three-phase generator for use with smart systems in medical microinstrumentation", *Proceedings of the 2011 IEEE 15th International Symposium on Consumer Electronics ISCE 2011*, Singapore, June 2011, pp. 479-483.

ISSN: 0747-668X

ISBN: 978-1-61284-843-3

Jesús García Guzmán, Farah Helúe Villa López y Alfredo Ramírez-Ramírez, "A comparison of responses of voltage propagation in transmission lines using Wave Digital Filters", *Advances in Computer Science and Electronic Systems - Research in Computing Science* 52 (2011) pp. 215-225.

ISSN: 1870-4069

Jesús García Guzmán, Farah Helúe Villa López y Alfredo Ramírez-Ramírez, "Modelling voltage propagation in transmission lines using Wave Digital Filters", *Proceedings of the 1st International Congress on Instrumentation and Applied Sciences ICIAS 2010*, Cancún, México, October 2010.

ISBN 978-607-02-0840-9.

Su Lim Tan, Heng Shi Teo, **Jesús García Guzmán**, "E-nose screening of pesticide residue on chilli and double-checked analysis through different data-recognition algorithms", *Proceeding of IEEE 2010 Electronics, Robotics and Automotive Mechanics Conference CERMA 2010*, Cuernavaca, México, September 2010, pp. 592-596.

ISBN: 978-0-7695-4204-1

Print ISBN: 978-1-4244-8149-1

Jesús García Guzmán, Julian W. Gardner, Marina Cole, "A duo-type smart gas sensor ASIC chip for use with resistive nanomaterials", *Procedia Engineering* 5 (2010) pp. 176-179.

ISSN: 1877-7058

Eng-Han Ng, Su-Lim Tan, **Jesús García Guzmán**, "Road traffic monitoring using a wireless vehicle sensor network", *Proceedings of ISPACS 2008 International Symposium on Intelligent Signal Processing and Communication Systems*, Bangkok, Thailand, February 2009, pp. 1-4.

E-ISBN: 978-1-4244-2565-5
Print ISBN: 978-1-4244-2564-8

P. Padilla-Sosa, H.H. Cerecedo-Núñez, J. Narváez-Ramírez, F.H. Silva del Rosario y **J. García-Guzmán**, "Método de múltiples reflexiones para determinar el movimiento en un riel de aire", *Revista Mexicana de Física E* 54 (2), December 2008, pp. 208-211.

ISSN: 1870-3542

J. García-Guzmán, E. González-López, R. Campillo-Rodríguez. "Estudio de modos normales de vibración de una membrana mediante filtros digitales de ondas", *Proceedings of IEEE-CIINDET 2008*, Cuernavaca, México, October 2008.

ISBN 978-607-95255-0-7.

J. Garcia-Guzman, F. Meza-Martínez, V.R. Garcia-Colon, S.L. Tan. "Avances y tendencias en la prevención de incendios y explosiones en transformadores de potencia", *Proceedings of IEEE-CIINDET 2008*, Cuernavaca, México, October 2008.

ISBN 978-607-95255-0-7.

J. Garcia-Guzman, A. Salgado-Uscanga, F. Meza-Martínez, C. Gomez-Pecero. "Computer assisted design of a CMOS-compatible inductor for RF", *Proceedings of Argentine School of Micro-Nanoelectronics, Technology and Applications, 2008; EAMTA 2008*. Buenos Aires, Argentina, September 2008, pp. 43-48.

ISBN: 978-987-655-003-1

ISBN: 978-987-655-007-9.

J. E. Khawaja, M. Cole, **J. Garcia-Guzman**, J. W. Gardner, "Gold nanoparticle CMOS sensor for VOC detection", *Euroensors XX Book of Abstracts*, Göteborg, Sweden, 2006, pp. 142-143.

ISBN10: 91-631-9280-2

ISBN13: 978-91-631-9280-7

Julian W. Gardner, **Jesús García-Guzmán**, Marina Cole, "Smart ASIC chip for vapour detection based upon carbon black/polymer composite nanomaterials", *Proceedings of SPIE 5389 in Smart Structures and Materials 2004: Smart Electronics, MEMS, BioMEMS and Nanotechnology*, San Diego, CA, USA. March 2004, pp. 344-354.

ISSN: 0277-786X

ISBN 0-8194-5306-4.

M. Cole, N. Olivieri, **J. Garcia-Guzman**, J. W. Gardner. "Parametric model of a polymeric chemoresistor for use in smart sensor design and simulation", *Microelectronics Journal* 34 (2003) pp. 865-875.

ISSN: 0026-2692

J. García-Guzmán, N. Olivieri, M. Cole, J. W. Gardner. "Design and simulation of a smart ratiometric ASIC chip for VOC monitoring", *Sensors and Actuators B* 95 (2003) pp. 232-243.

ISSN: 0925-4005

M. Cole, **J. García-Guzmán**, J. W. Gardner, "Smart ratiometric ASIC chip for a palm-top VOC monitor", *Proceedings of Eurosensors XVI The 16th European Conference on Solid-State Transducers*, Prague, Czech Republic, 2002, pp. 509-512.

M. Cole, **J. García-Guzmán**, J. W. Gardner, "Smart ratiometric ASIC chip for a palm-top VOC monitor", Eurosensors XVI The 16th European Conference on Solid-State Transducers, Prague, Czech Republic, *Book of Abstracts*, Vol. 2, 2002, pp. 281-282.

ISBN 80-01-02576-4.

Stuart S. Lawson and **Jesús G. Guzmán**, "On the Modelling of the 2-D Wave Equation Using Multi-Dimensional Wave Digital Filters", *Proceedings of ISCAS 2001: The 2001 IEEE International Symposium on Circuits and Systems*, Vol. II, pp. 377-380, Sydney, Australia, May 6-9, 2001.

Print ISBN: 0-7803-6685-9

CD-ROM ISBN: 0-7803-6687-5.

DOI: 10.1109/ISCAS.2001.921086

DISTINCTIONS

- 2019 Awarded a special recognition on the Day of Inventor, for being inventor of the “Sistema Biomédico portátil para el monitoreo inteligente del asma”, registered under the number MX/a/2018/015845 in the Instituto Mexicano de la Propiedad Industrial.
- 2019 Awarded a special recognition on the Day of Inventor, for being inventor of the “Sistema Interactivo controlado de entrenamiento vía remota para automatización con plc”, registered under the number MX/a/2018/015844 in the Instituto Mexicano de la Propiedad Industrial.
- 2018 Awarded the *Premio a la Investigación Interdisciplinaria en torno al Plan de reestructuración estratégica del Conacyt (2018-2024)*, given by Universidad Veracruzana in recognition to the project “Análisis del impacto de la capacitación tecnológica en el uso y aprovechamiento de energías limpias a mujeres mexicanas del medio rural”.
- 2018 Awarded a special recognition from Universidad Veracruzana, for being one of the academics obtaining international distinctions, particularly because of the IEEE Senior Membership obtained in 2017.
- 2018-2021 Awarded the PRODEP recognition to university professors, by National Ministry of Higher Education, México.
- 2017 Awarded *Mención Honorífica* (Distinction) in the *Premio a la Investigación Interdisciplinaria en torno a la Agenda 2030 para el Desarrollo Sostenible de la ONU*, given by Universidad Veracruzana in recognition to the project “Empoderamiento a mujeres mexicanas de origen rural a través de la capacitación tecnológica en el marco de la Agenda 2030”.
- 2017 Elected to the grade of SENIOR MEMBER of the Institute of Electrical and Electronic Engineers IEEE, in recognition of professional standing. This is the highest grade awarded to IEEE members.
- 2015-2017 Awarded the highest level (level 6) for academic results within the Scheme of Stimuli to Performance of Academic Staff (PEDPA *Programa de Estímulos al Desempeño del Personal Académico*) at Universidad Veracruzana.
- 2015-2018 Awarded the PROMEP recognition to university professors, by National Ministry of Higher Education, México.
- 2014 Premio al Decano 2014 (2014 Dean Award), awarded by Universidad Veracruzana to the most prominent academic for outstanding achievements during his long academic career
- 2013-2015 Renewal for the third time of the honorary title of Associate Fellow in the School of Engineering, University of Warwick.
- 2013-2016 Awarded the recognition by National Ministry of Higher Education, México. to the Academic Group of Advanced Engineering (*Cuerpo Académico de Ingeniería Avanzada*), for promoting to a higher level of consolidation, under his leadership and coordination.

- 2012-2015 Awarded the PROMEP recognition to university professors, by National Ministry of Higher Education, México.
- 2010-2013 Renewal of the honorary title of Associate Fellow in the School of Engineering, University of Warwick.
- 2008-2010 Honorary title of Associate Fellow in the School of Engineering, University of Warwick.
- 2009-2012 Awarded the PROMEP recognition to university professors, by National Ministry of Higher Education, México.
- 2009-2011 Awarded the highest level (level 6) for academic results within the Scheme of Stimuli to Performance of Academic Staff (PEDPA *Programa de Estímulos al Desempeño del Personal Académico*) at Universidad Veracruzana.
- 2006-2009 Awarded the PROMEP recognition to university professors, by National Ministry of Higher Education, México.
- 2006 His design of a smart ASIC chip was distinguished as a model prototype in the 2005 Annual Report of Europractice IC Service.
- 2000-2003 Awarded the PROMEP recognition to university professors, by National Ministry of Higher Education, México.
- 1999 Graduated of the MSc in Advanced Engineering with distinction, University of Warwick.
- 1998 Graduated with honours, MSc in Higher Education, ICEST, Mexico.
- 1990 Awarded the National Prize for Engineering Thesis Supervision, by CONACYT, Comisión Federal de Electricidad and Institute for Electrical Research, México.
- 1984 Awarded the Academic Merits Diploma for academic achievements in Universidad Veracruzana.

MEMBERSHIPS AND PARTICIPATION IN PROFESSIONAL ASSOCIATIONS

- **IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS) SENIOR MEMBER 80326365.**
- **IET (THE INSTITUTION OF ENGINEERING AND TECHNOLOGY) MEMBER 1100128672.**

- 2020 Co-Chair of the Organising Committee of the 2020 IEEE International Conference on Engineering Veracruz (IEEE-ICEV 2020) “Smart technologies under the triple helix model of innovation”, held in Boca del Río, Veracruz, México, in October 2020 (Virtual mode).
- 2019 Co-Chair of the Organising Committee of the 2019 IEEE International Conference on Engineering Veracruz (IEEE-ICEV 2019) “Innovation and technology development”, held in Xalapa, México, in October 2019.
- 2018 Member of the Technical Committee of LACCEI 2018, the 16th LACCEI International Multi-Conference for Engineering, Education and Technology, held in Lima, Perú, in July 2018, as a reviewer of papers submitted for publication in the LACCEI 2018 Proceedings, indexed by Scopus.
- 2018 Chair of the Technical Committee of the 2018 International Summer School of Universidad Veracruzana (ISSUV 2018) “International Development Through Women in Technology”, held in Xalapa, México, in July 2018.
- 2018 Member of the Technical Committee of 2018 IEEE International Symposium on Circuits and Systems (IEEE ISCAS 2018), held in Florence, Italy, in May 2018, as a reviewer of papers submitted for publication in the IEEE Xplore Digital Library and indexed in Scopus.
- 2017 Reviewer of technical articles for the International Symposium on Olfaction and Electronic Nose (ISOEN 2017), held in Montreal, Canada, in May 2017, to be published by ISOCS/IEEE in the IEEE Xplore Digital Library.
- 2017 Member of the Technical Committee of LACCEI 2017, the 15th LACCEI International Multi-Conference for Engineering, Education and Technology, held in Boca Raton, Florida, USA, in July 2017, as a reviewer of papers submitted for publication in the LACCEI 2017 Proceedings.
- 2016 Member of the Technical Program Committee of the 6th IEEE International Conference on Consumer Electronics (IEEE 2016 ICCE-Berlin), held in Berlin, Germany, in September 2016, as a reviewer of papers submitted for publication in the IEEE Xplore Digital Library and indexed in Scopus.
- 2016 Member of the Technical Committee of LACCEI 2016, the XIV Latin American and Caribbean Conference for Engineering and Technology, to be held in San José, Costa Rica, in July 2016, as a reviewer of papers submitted for publication in the LACCEI 2016 Proceedings.
- 2015 Member of the Technical Committee of LACCEI 2015, the XIII Latin American and Caribbean Conference for Engineering and Technology, to be held in Santo Domingo, in July 2015, as a reviewer of papers submitted for publication in the LACCEI 2015 Proceedings.
- 2014-2015 Member of the Technical Program Committee of 2015 IEEE International Conference on Industrial Technology (IEEE ICIT 2015), to be held in Sevilla, España, in March 2015, as a reviewer of papers submitted for publication in the IEEE Xplore Digital Library.

- 2014 Member of the Technical Program Committee of the 4th IEEE International Conference on Consumer Electronics (IEEE 2014 ICCE-Berlin), to be held in Berlin, Germany, in September 2014, as a reviewer of papers submitted for publication in the IEEE Xplore Digital Library.
- 2012-2013 Member of the Committee of CIIECC 2013 The 2013 Iberoamerican Conference on Electronics Engineering and Computer Science, held in San Luis Potosí, México, in April 2013, as a reviewer of papers submitted for publication in Procedia Technology, Elsevier.
- 2011-2012 International Advisor for the 16th IEEE International Symposium on Consumer Electronics (ISCE 2012) and 6th Annual Symposium on Signal Integrity, held in June 2012 at Harrisburg, Pennsylvania, USA.
- 2011-2012 Member of the Committee of CIIECC 2012 The 2012 Iberoamerican Conference on Electronics Engineering and Computer Science, held in Guadalajara, México, in May 2012, as a reviewer of papers submitted for publication in Procedia Technology, Elsevier.
- 2011 Member of the Committee of the 2011 IEEE Conference on Electric Insulation and Dielectric Phenomena (CEIDP 2011), held in October 2011 in Cancún, México, as Chair of the Technical Sessions on Nanodielectrics.
- 2011 Referee for the ISOEN 2011 The 14th International Symposium on Olfaction and Electronic Nose, reviewing papers to be published by the American Institute of Physics (AIP) and in the special issue of the IEEE Sensors Journal on "Machine Olfaction".
- 2010-2011 International Advisor and Track Chair in the Telemedicine Area for the 15th IEEE International Symposium on Consumer Electronics (ISCE 2011), held in June 2011 at Nanyang Technological University, Singapore.
- 2009-2012 Revista Ingeniería y Tecnología, Universidad Nacional Autónoma de México (UNAM) – Invited referee for submitted papers in Electronics and Advanced Engineering.
- 2008-2009 General Chair of the International Forum on Advanced Engineering Research IFAER 2009, organized by Universidad Veracruzana in partnership with the IEEE PES Xalapa Chapter.
- 2008 Appointed as Chair of the Technical Chapter of IEEE Power and Energy Society, Veracruz Section.
- 2008 SOMI XXIII Conference, *Mexican Society of Instrumentation* (Sociedad Mexicana de Instrumentación) – Invited referee for submitted papers in the area of Materials, Sensors and Thin Films.
- 2007 International Conference IEEE-ALTAE07 Finance Chair, Coordinator of Technical Sessions, and member of the referee panel.

ACADEMIC ACTIVITIES

- 2016-2018 Member of the academic board of the Doctor of Engineering programme at Universidad Veracruzana.
- 2016-2018 Counsellor and founder of the Universidad Veracruzana-FIME Xalapa **IEEE Student Branch**, leading student activities in collaboration with the Advanced Engineering Research Group.
- 2013-2015 Renewed for the third time the honorary title of **Associate Fellow in the School of Engineering, University of Warwick**.
- 2011-2014 Founder member of the postgraduate course of Master in Electronics and Computing Engineering, at the Faculty of Electronic Instrumentation Engineering, Universidad Veracruzana.
- 2010-2013 Renewed honorary title of **Associate Fellow in the School of Engineering, University of Warwick**.
- 2009-2010 Honorary assessor for Fondo de Cooperación Internacional en Ciencia y Tecnología Unión Europea-México (FONCICyT), CONACyT, México.
- 2009-2011 Member of the academic staff for the postgraduate course of MSc in Micro and Nanosystems, at the Research Centre on Micro and Nanotechnology (MICRONA *Centro de Investigación en Micro y Nanotecnología*), Universidad Veracruzana.
- 2009-2016 Member of the academic staff for the postgraduate course of Master in Energy Engineering, at the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana.
- 2006-2013 Head of the Academic Group for Advanced Engineering (CAIA *Cuerpo Académico de Ingeniería Avanzada*) in the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana.
- 2008-2010 Honorary title of **Associate Fellow in the School of Engineering, University of Warwick**.
- 2008-2009 General Chair of the **IEEE-UV INTERNATIONAL FORUM ON ADVANCED ENGINEERING RESEARCH IFAER 2009**, a meeting of distinguished researchers in different areas of engineering with the aim of promoting research in Mexico and Latin America, to be held in Xalapa, Veracruz, México in May 27-29, 2009.
- 2008, 2012 Visiting Fellow at the University of Warwick, United Kingdom, developing joint research with the groups of the Sensor Research Laboratory (MBL) and Optical Engineering Laboratory (OEL), a research collaboration that has been maintained since 2003, resulting in scientific publications both in specialised journals and international conferences.
- 2007-2008 Head of the Research Group for the Development of Advanced Technology (GIDTA *Grupo de Investigación para el Desarrollo de Tecnología Avanzada*), which involves academics from several faculties working into multidisciplinary projects; Universidad Veracruzana.
- 2007-2013 Founder and Head of the Advanced Engineering Laboratory (Laboratorio de Ingeniería Avanzada) shared by the Faculties of Mechanical and Electrical Engineering, Physics and

- Artificial Intelligence, and Electronic Instrumentation Engineering, at main campus of Universidad Veracruzana.
- 2000–2002 Representative of Universidad Veracruzana in an ALFA network project of European Community, for the design of a postgraduate program in the area of Colour Vision Sciences. The network included nine institutions from Europe and Latin America.
- May 2000 General Chair of **IFAER 2000** (INTERNATIONAL FORUM ON ADVANCES IN ENGINEERING RESEARCH), a meeting of distinguished researchers in different areas of engineering with the aim of promoting research in Mexico and Latin America.
- 1998 Member of the group of academic leaders who developed the MEIF (*Modelo Educativo Integral y Flexible*), the new curricular model used in all the academic programs of Universidad Veracruzana. As a member of the group, he was responsible for the proposal and design of the course on Basic Computing (Computación Básica), which is taken compulsory by every student in the university. He contributed extensively with the whole project and he was also in charge of the main presentation of the model to the governing body of the university.
- 1997–1998 Representative of Universidad Veracruzana in the Exchange Programme Mexico-Great Britain, linking Mexican and British universities under the Mexican government initiative PROMEP, for Electrical and Electronic Engineering, Manufacturing Engineering, and Computer Science.
- 1978-2014 Lecturer in the faculties of Mechanical and Electrical Engineering, Civil Engineering, Pharmaceutical and Biologist Chemistry, Statistics, and Chemical Engineering, teaching more than 40 different courses during these years.
- 1997 Author of the model and manager of the project for the design and implementation of the *Red Académica de Servicios en Ingeniería* (RASI), the first computer network for academic purposes in the campus of Universidad Veracruzana.
- 1985-1989 Founder and Director of the Computer Services Centre for the faculties of Engineering and Chemistry at Universidad Veracruzana.
- 1984–1989 Founder and Director of CIMA (*Consejo Interdisciplinario de Mejoramiento Académico*), a group of academics promoting and supporting extra-curricular activities for the benefit of several undergraduate programs in the schools of Chemistry and Engineering.

PROJECTS AND GRANTS

- 2011-2012 Received a “Fortalecimiento of CAs” grant from the Mexican Government, as financial support for the project “Diseño e implementación de laboratorios remotos con acceso, monitoreo y control mediante instrumentos virtuales”. The grant is worth \$274,000 MXN, and it is aimed to promote collaborative activities developed by the research group Cuerpo Académico de Ingeniería Avanzada, under his direction.
- 2010 Partner in “LINKLASER, Red de Conocimiento para la Mejora de la Competitividad de Sectores Industriales mediante la Aplicación del Láser”, a network project co-ordinated by AIDO, Spain, under the CYTED (Latinamerican Science & Technology Development Programme).

- 2009 Academic Collaboration Projects Award 2009, from Universidad Veracruzana, destined to fund the visit of a researcher from Nanyang Technological University, Singapore.
- 2008 Academic Groups Award 2008, destined to fund a visit to Warwick University, UK, for collaborative purposes.
- 2008 Received the REDIV award from the Direccion de Investigaciones, the main body for research support at Universidad Veracruzana. The aim of the award, worth \$600,000 MXN, is the consolidation of the Red de Colaboracion para el Desarrollo de la Ingenieria Avanzada (Collaborative Network for the Development of Advanced Engineering), i.e. to promote collaborative work within multi-disciplinary groups in advanced engineering projects. The award is for one year and it can be extended and improved for two more years.
- 2007 Awarded the PIFI 2007 Proyecto Integral de Fortalecimiento Institucional (Integral Project for Institutional Improvement) from the Mexican Ministry for Higher Education, with \$300,000 MXN, orientated to laboratory equipment.
- 2007 Academic Groups Award 2007, destined to fund the visit of two British researchers to Universidad Veracruzana in Mexico.
- 2007 Academic Interchange Award 2007, destined to fund the visit of a researcher from Nanyang Technological University, Singapore.
- 2001-2002 ALFA Programme network, collaborating as representative of Universidad Veracruzana together with nine institutions from Europe and Latin America, for the development of a joint postgraduate course in the area of Sciences of Colour Vision.
- 2000-2004 PROMEP grant for doctoral studies, PhD in Engineering at Warwick, UK.
- 1998-1999 PROMEP scholarship for postgraduate studies in Advanced Engineering, MSc at Warwick, UK.

PRESENT RESEARCH

Present research at Universidad Veracruzana includes a series of projects related to intelligent sensor networks in advanced engineering systems. In one of the projects, developed jointly with the national Institute for Electrical Investigations (IIE, Instituto de Investigaciones Electricas, Mexico) and Nanyang Technological University (NTU, Singapore), an intelligent multisensor network is being developed for the monitoring and prevention of fire and explosions in power transformers, within the Mexican electrical distribution network. I am in charge of designing field proximity sensors and integrating control circuitry for the sensor nodes, as well as co-ordinating the automated processing of the wirelessly gathered data. In another project, in collaboration with the Institute of Neuroethology (Instituto de Neuroetologia, Universidad Veracruzana, Mexico) and NTU, an intelligent multisensor network is being proposed for monitoring animal behaviour in order to preserve species in danger of extinction in the southeast of Mexico. The proposal includes mobile sensor nodes and GPS units with a smart data-collection system which allows biologists a much easier monitoring of groups and animal behaviour. My contributions to this and other projects (e.g. health monitoring in smart buildings, vehicle monitoring, engine diagnostics) include sensor design and integration in smart nodes with wireless communication within ASIC devices which eventually will include all

the signal processing and sensing functions. The most recent project in this area is related to the monitoring of failures in transmission lines using a smart wireless sensor network.

Working with the group *Cuerpo Académico de Ingeniería Avanzada*, we have developed prototypes for remote laboratories using virtual instrumentation, which have proven to be an excellent teaching aid for engineering students. The results of this project are being published and a second stage is in progress.

As an Associate Fellow of the University of Warwick, UK, I am collaborating with the research group of the *Microsensors and Bioelectronics Laboratory (MBL)*. The group has been working in the area of gas microsensors for several years and has focused recently in the modelling of silicon microsensors, chemical sensor array devices, biomimetic MEMS devices and electronic noses. Current projects at MBL include the development of a new generation of micro-hot plates based on an SOI process, and the development of a new class of technology for infochemical communication. In both of these projects, there is a need for the design and fabrication of electronic systems for the conditioning and processing of signals, and it is required to integrate MEMS sensors and advanced driving circuitry using CMOS technologies. To tackle this need, I contribute by using the expertise I gained during the last few years, starting while working towards my PhD degree, in the design and simulation of CMOS ASIC chips for resistive gas sensors. Given that the mentioned projects involve several types of sensors and considering that it is also desirable that at least basic signal processing is performed within the devices, my contribution will be also orientated to the development of intelligent multisensor based systems. Therefore, my research work within the MBL group consists in the design, simulation and fabrication of smart ASIC components in intelligent multisensor based systems, for the development of both micro-hot plates based on an SOI process, and a novel combined chemoemitter/receiver system, capable of information transmission using chemicals alone.

A new project has been recently submitted by the MBL group to the Seventh Framework Programme (FP7) of the European Commission, in order to continue my collaboration with the Warwick research group in the field of sensors for robots, starting in 2014.

ADMINISTRATIVE POSITIONS

- 2012-2018 Coordinator of the Academy of Electrical Engineering, in the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana.
- 2005-2018 Head of the Academic Group of Advanced Engineering in the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana.
- 2010 Co-ordinator of the Academic Network for Engineering Services (*RASI Red Académica de Servicios en Ingeniería*), in the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana, being in charge of all the computer network operation and other IT services for the faculty.
- 2007-2018 Founder and Head of the Advanced Engineering Laboratory (*Laboratorio de Ingeniería Avanzada*) shared by the Faculties of Mechanical and Electrical Engineering, Physics and Artificial Intelligence, and Electronic Instrumentation Engineering, at main campus of Universidad Veracruzana.
- 2006 Coordinator of the Academy of Electronics and Control, in the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana.

- 2005-2008 Coordinator of Postgraduate Studies in the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana.
- 1999-2000 Coordinator of Computer Services Centres of the Technical Academic Area of Universidad Veracruzana.
- 1990-1998 Coordinator of the Academy of Electronics and Control, in the Faculty of Mechanical and Electrical Engineering, Universidad Veracruzana.
- 1978–1979 Head of the Technical Area of the *Escuela de Iniciación Universitaria*, Universidad Veracruzana, the school for the first year of every university student.

PROFESSIONAL EXPERTISE

- 2000-2005 PhD Thesis: “Smart ratiometric ASIC chip for VOC monitoring”, which describes the design, modelling, simulations, layout, fabrication and characterisation of an integrated CMOS system with resistive gas sensors.
- The ASIC was developed at the Microsensors and Bioelectronics Laboratory in the University of Warwick, UK.
- The ASIC was fabricated through *Europractice* at IMEC, Belgium, using CMOS technology by Alcatel (AMIS).
- A second generation of the ASIC chip was designed and is used for demonstration of a new type of microsensors in the research laboratories of SONY, in Germany.
- 1986-1998 Founder and Director of the company *Producciones y Servicios Canny**, dedicated to the development and implementation of educational multimedia systems. The company pioneered the application of microcomputers in education and provided training and consultancy to many companies, industry and governmental offices. Under a special agreement, the company was in charge of training top level staff of Comisión Federal de Electricidad, the national body for electricity generation, transmission and distribution.
- 1978-1980 Computer programmer using COBOL, JCL, FORTRAN and BASIC languages for the Informatics Department of the Government of Veracruz, and for the Informatics and Systems Department of Universidad Veracruzana.
- 1979-1981 Sound Recording Engineer working for the radio station of Universidad Veracruzana, installing a complete sound recording studio, and for professional sound recording companies Promodiscos and MBK, producing several records for professional groups.
- 1976-2000 Musician and programmer of digital musical systems using MIDI instruments.