



**Róger E.
Sánchez
Alonso**

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Associate Professor and researcher

9 years of teaching experience / 5 years of research
experience

Education

2012-2016: PhD degree in advanced technology

National Polytechnic Institute. Mexico.

2009-2011: Master degree in advanced technology

National Polytechnic Institute. Mexico.

2010: Lean manufacturing diploma degree

Corporate Education. Mexico.

2002-2006: Industrial engineering degree

National University of Engineering. Nicaragua

Current job position

Since 2008 holds the position of Associate Professor at the National University of Engineering-Nicaragua. He is currently executive editor of the Nexo Scientific Journal, which is the most important science and technology journal in the country.

He works in lines of research related to the Design and Analysis of Industrial Robots and the use of robotics and virtual reality to improve the technological training process in engineers of different specialties.

Teaching experience

Throughout his teaching career he has taught subjects of the professional practice of the disciplines of Industrial Engineering and Mechatronics. In the area of Industrial Engineering the following courses may be mentioned: Operations Research, Economic Engineering, Micro-economics, Production Planning and Control, Occupational Safety and Hygiene, and Project Design and Evaluation. On the other hand, in the area of Mechatronics: Machine Kinematics and Dynamics, Robotics, Automatic Control, and Computer Aided Design.

Professional experience



- Consultant and trainer. S&S Business Consultants. 2011-2012.
- Process engineer. Mauricio Dias Müller Pharmaceutical Laboratory. 2007-2009.
- Project Engineer. SALMAN Company. 2006-2007.

Scientific productivity



1. Scientific journals

- Sánchez-Alonso R. E., Ortega-Moody J. A., González-Barbosa J. J., Reyes-Morales G., 2017. "Use of Platforms for the Development of Virtual Applications in the Modeling of Robot Manipulators". *Revista Iberoamericana de Automática e Informática Industrial RIAI*, 14 (3), 279-287.
- Ortega-Moody J. A., Sánchez-Alonso R. E., Grise W. R., Garcia-Malacara J. L., Vidana-Morales R. Reyes-Morales G., 2017. "*Virtual laboratory of industrial scenarios for training in the areas of automation and control*". *DYNA*, 92 (3), 285-287.
- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., García-Murillo M. A., 2016. "*Kinematic Analysis of a Novel Reconfigurable Parallel Robot*". *Revista Iberoamericana de Automática e Informática Industrial RIAI*, 13 (2), 247-257.
- Ortega-Moody J. A., Sánchez-Alonso R. E., González-Barbosa J. J., Reyes-Morales G., 2016. "*Virtual Laboratories for Training in Industrial Robotics*". *IEEE LATIN AMERICA TRANSACTIONS*, 14 (2), 665-672.
- García-Murillo M. A, Sánchez-Alonso R. E., Gallardo-Alvarado J., 2016. "*Kinematics and Dynamics of a Translational Parallel Robot Based on Planar Mechanisms*". *Machines*. 4 (4), 22.
- Sánchez-Alonso R. E., 2016. "*Una aplicación de teoría de tornillos para la identificación de singularidades en un novedoso robot paralelo reconfigurable*". *Nexo*. 29 (2), 59-68.
- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., Gallardo-Alvarado J., 2015. "*Kinematic analysis of a novel 2(3-RUS) parallel manipulator*". *Robotica*, 34 (10), 2241-2256.
- Sánchez-Alonso, R. E., González-Barbosa, J. J., Castillo-Castañeda, E., Balmaceda-Santamaría, A. L., 2015. "*Kinetostatic Performance Analysis of a Reconfigurable Delta-Type Parallel Robot*", *Ingeniería, Investigación y Tecnología*, 16 (2), 213-224.

2. Scientific journals of diffusion

- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., García-Murillo M. A., Ruiz-Torres M. F., 2015. "*An application of screw theory for the estimation of the kinetostatic performance of a Delta type robot*". *AMRob Journal, Robotics: Theory and Applications*, 3 (2), 49-54.

- Balmaceda-Santamaría A. L., Castillo-Castañeda E., Gallardo-Alvarado J., Sánchez-Alonso R. E., 2015. "A family of parallel reconfigurable Delta manipulators". AMRob Journal, Robotics: Theory and Applications, 3 (4), 99-104.
- García-Murillo M. A., Guerrero-Gutiérrez J. D. E., Gallardo-Alvarado J., Sánchez-Alonso R. E., Sandoval-Castro X. Y., 2015. *Determination of the geometric parameters of a parallel robot using image analysis*". AMRob Journal, Robotics: Theory and Applications, 3 (3), 93-98.
- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., 2014. "Conceptual Design of a Reconfigurable Parallel Robot". La Mecatrónica en México, 3 (3), 75-83.
- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., Ortega-Moody J. A., 2014. "Methodology for 3D Mapping of the Accuracy of Robots Manipulators". La Mecatrónica en México, 3 (1), 1-10.

3. Patent applications

- Patent title: Parallel Robot of Six Degrees of Freedom. File: MX/a/2013/011009. Date: SEP/25/2013. Hour: 12:52:18. Sheet number: MX/E/2013/069076. Inventors: Eduardo Castillo Castañeda, Róger Ernesto Sánchez Alonso, Albert Lester Balmaceda Santamaría and Mario Alberto García Murillo.

4. Conference proceedings

- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., 2015. "A simple method to formulate the direct position model of a hexapod manipulator". XI Congreso Internacional sobre Innovación y Desarrollo Tecnológico, IEEE, Cuernavaca, Morelos, México.
- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., García-Murillo M. A., Ruiz-Torres M. F., 2015. "An application of screw theory for the estimation of the kinetoostatic performance of a Delta type robot". XVI Congreso Mexicano de Robótica, Asociación Mexicana de Robótica, Mazatlán, Sinaloa, México.
- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., 2014. "Conceptual Design of a Reconfigurable Parallel Robot". 13° Congreso Nacional de Mecatrónica, Asociación Mexicana de Mecatrónica, Querétaro, Querétaro, México.
- Sánchez-Alonso R. E., González-Barbosa J. J., Castillo-Castañeda E., Ortega-Moody J. A., 2013. "Methodology for 3D Mapping of the Accuracy of Robots Manipulators". 12° Congreso Nacional de Mecatrónica, Asociación Mexicana de Mecatrónica, León, Guanajuato, México.
- Sánchez-Alonso R. E., Castillo-Castañeda E., Balmaceda-Santamaría A. L., Valencia-Arguello R., Ruiz-Torres M. F., 2013. "3D Mapping of the Accuracy of a Delta Type Parallel Robot". 1er Congreso Internacional de Robótica y Computación. Los cabos, Baja California Sur, México, 200-204.
- Sánchez-Alonso R. E., Castillo-Castañeda E., 2010. "Three-dimensional meshing based on data from a LIDAR HDL-64E". VIII Congreso Internacional sobre Innovación y Desarrollo Tecnológico, IEEE, Cuernavaca, Morelos, México.

- Sánchez-Alonso R. E., Castillo-Castañeda E., González-Barbosa J.J., 2010. *“Mechatronic system to increase the vertical viewing angle of the LIDAR HDL-64E”*. 9° Congreso Nacional de Mecatrónica, Asociación Mexicana de Mecatrónica, Puebla, Puebla, México.
- Maraghehmoghaddam A., Ortega-Moody J. A., Sánchez-Alonso R. E., 2015. *“Development of a user interface to communicate with virtual delta robot by Modbus/TCP protocol”*. In the Kentucky Academy of Science 2015 Annual Meeting, Kentucky, USA.
- Stafford T., Ortega-Moody J. A., Sánchez-Alonso R. E., 2015. *“Development of Delta Robot as a Didactic Platform for Training in the Field of Mechatronics”*. In the Kentucky Academy of Science 2015 Annual Meeting, Kentucky, USA.
- García-Murillo M. A., Gallardo-Alvarado J., Ruiz-Torres M. F., Sánchez-Alonso R. E., Sandoval-Castro X. Y., 2015. *“A parallel translational robot based on planar mechanisms”*. XVII Congreso Mexicano de Robótica, Asociación Mexicana de Robótica, Los cabos, Baja California Sur, México.
- Balmaceda-Santamaría A. L., Castillo-Castañeda E., Gallardo-Alvarado J., Sánchez-Alonso R. E., 2015. *“A family of parallel reconfigurable Delta manipulators”*. XVI Congreso Mexicano de Robótica, Asociación Mexicana de Robótica, Mazatlán, Sinaloa, México.
- García-Murillo M. A., Guerrero-Gutiérrez J. D. E., Gallardo-Alvarado J., Sánchez-Alonso R. E., Sandoval-Castro X. Y., 2015. *“Determination of the geometric parameters of a parallel robot using image analysis”*. XVI Congreso Mexicano de Robótica, Asociación Mexicana de Robótica, Mazatlán, Sinaloa, México.
- García-Murillo M. A., Sánchez-Alonso R. E., Gallardo-Alvarado J., 2014. *“DoublePM: A Novel 3 DOF Translational Parallel Manipulator”*. 7° CONGRESO INTERNACIONAL DE INGENIERÍA ELECTROMECAÁNICA Y DE SISTEMAS, Ciudad de México, México.
- Valencia-Arguello R., Castillo-Castañeda E., Traslosheros-Michel A., Sánchez-Alonso R. E., Ruiz-Torres M. F., 2013. *“Methodology to Evaluate the Accuracy of Position Control Systems for UAVs”*. 1er Congreso Internacional de Robótica y Computación. Los cabos Baja California Sur, México, 85-89.

Research stays

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- Stay in the Department of Engineering at the Technological Institute of Celaya, México. February-July 2014.
 - Stay in the Department of Computer Science at the University of Houston, USA. January-July 2015.
 - Stay in the Department of Engineering and Technology Management at Morehead State University, USA. August-December 2015.



Distinctions



- Two Rafael Kelly Award nominations. Mexican Association of Robotics.
- Graduated with Honors of the LXV Graduation of Industrial Engineers. National University of Engineering. Nicaragua
- Best grades (9.6/10) of Master in advanced technology National Polytechnic Institute. Mexico.
- Best grades (10/10) of the PhD in advanced technology National Polytechnic Institute. Mexico.

Reference



- Dr. José Joel González Barbosa (Profesor at the National Polytechnic Institute. Mexico)
jgonzalezba@ipn.mx
- Dr. Eduardo Morales Sánchez (Profesor at the National Polytechnic Institute. Mexico)
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- Dr. Alejandro Alfredo Lozano Guzmán (Profesor at the National Polytechnic Institute. Mexico)
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