

Juan J. Rojas Hernández, M.Sc

CONTACT INFORMATION	SETECLab \ SESLab Instituto Tecnológico de Costa Rica juan.rojas@tec.ac.cr
RESEARCH INTERESTS	Nanosatellites power systems, power electronics, solar photovoltaic energy, dynamic systems modeling, multi-physics modeling, MEMS.
EDUCATION	<p>Kyushu Institute of Technology, Kitakyushu, Japan.</p> <p>D.Eng, Applied Science for Integrated System Engineering, <i>Expected:</i> September 2020</p> <p>Research Topic: <i>A lean satellite electrical power system with direct energy transfer and bus voltage regulation based on a bi-directional buck converter</i></p> <p>Advisor: Mengu Cho, Ph.D.</p> <p>Instituto Tecnológico de Costa Rica, Cartago, Costa Rica.</p> <p>M.Sc., Electronics with emphasis on MEMS, <i>Graduated:</i> September 2016</p> <p>Research Topic: <i>Design, Simulation and Validation of an Equivalent Circuit Model for a Valveless Piezoelectric Micropump</i></p> <p>Advisor: Cristopher Vega Sanchez, M.Sc.</p> <p><i>Summa Cum Laude</i></p> <p>B.Eng., Industrial Maintenance, <i>Graduated:</i> February 2009</p>
RESEARCH EXPERIENCE	<p>Research Assistant Feb 2016 to Sep 2016</p> <p>School of Electronics, <i>Design and Implementation of a Dielectric Spectroscopy System for Bioengineering applications.</i> Instituto Tecnológico de Costa Rica Supervisor: Paola Vega, D.Eng.</p> <p>Research Associate Oct 2016 to Sep 2019</p> <p>Center for Nanosatellite Testing (CeNT), <i>Development of a charger/discharger system for electrochemical cell screening and testing.</i> Kyushu Institute of Technology, Japan. Supervisor: Mengu Cho, PhD.</p>

CONFERENCE
PUBLICATIONS

- [1] J. J. Rojas, T. Yamauchi, and M. Cho, "A Digitally Controlled Bi-Directional DC-DC Converter for Nanosatellite Power Systems," in *Proceedings of 1st China Microsatellite Symposium*, 2018.
- [2] J. J. Rojas, T. Yamauchi, H. Masui, and M. Cho, "Proposal for a Modular Electrical Power System for Nanosatellites," in *Proceedings of the 62nd Ukaren Conference*, 2018.
- [3] J. J. Rojas, J. Gonzalez-Llorente, T. Yamauchi, and M. Cho, "Development of a charger/discharger system for electrochemical cell screening and testing," in *Proceedings of the 61st Ukaren Conference*, 2017.
- [4] J. J. Rojas and J. E. Morales, "Design and Simulation of a Piezoelectric Actuated Valveless Micropump," in *COMSOL Conference Boston*, 2015.
- [5] J. J. Rojas, C. Vega, S. Corrales, P. Valverde, and D. Berrocal, "Low Cost Fabrication of a Piezoelectric Actuated Valveless Micropump," in *14th LACCEI International Multi-Conference for Engineering, Education, and Technology*, 2016.

JOURNAL
PUBLICATIONS

- [1] I. Fajardo, A. A. Lidtke, S. A. Bendoukha, J. Gonzalez-Llorente, R. Rodríguez, R. Morales, D. Faizullin, M. Matsuoka, N. Urakami, R. Kawauchi *et al.*, "Design, Implementation, and Operation of a Small Satellite Mission to Explore the Space Weather Effects in Leo," *Aerospace*, vol. 6, no. 10, p. 108, 2019.

SUBMITTED
JOURNAL
PUBLICATIONS

- [1] J. J. Rojas, T. Yamauchi, and M. Cho, "A lean satellite electrical power system with direct energy transfer and bus voltage regulation based on a bi-directional buck converter," *Submitted to the Journal of Small Satellites*, 2019.

CERTIFICATES

Introduction to Power Electronics by University of Colorado Boulder on Coursera. Certificate earned at Tuesday, December 6, 2016 4:28 PM GMT

Converter Circuits by University of Colorado Boulder on Coursera. Certificate earned at Tuesday, February 14, 2017 12:58 PM GMT

Converter Control by University of Colorado Boulder on Coursera. Certificate earned at Sunday, March 19, 2017 5:27 PM GMT

LANGUAGES

Spanish
English
Portuguese

Native
TOEFL iBT score: 100
Basic conversation