Rosalba P. Hernandez-Luquin

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Nationality: Mexican

SUMMARY

- M.S. student in the Mechanical Engineering Department at University of Guanajuato, Mexico.
- Experience in modeling techniques such as finite volume, finite element, and Lattice Boltzmann Method
- Research expertise/interest: numerical analysis of transport phenomena, kinetic molecular theory, simulation of nonideal fluids and phase separation, and diffusion in porous media.

EDUCATION

University of Guanajuato at Salamanca, Mexico. Jan 2019 –present
M.S. in mechanical engineering
Thesis: Modeling of diffusion and dissociation of arsenic-water in a granular ferric hydroxide media using the Lattice Boltzmann Method.
Advisor: Dr. Sergio Cano-Andrade and Dr. C. Eduardo Damian-Ascencio

University of Guanajuato at Salamanca, Mexico. Jan 2014 – Jun 2018
B. S. in Mechanical Engineering
Graduated with Honors
Overall GPA: 9.47/10

RESEARCH EXPERIENCE

University of Guanajuato, Mexico and University of California, Davis Aug 2017- Oct 2017
Undergraduate research intern

- Research advisors: Dr. Valeria La Saponara, UC Davis, and Dr. Elias Rigoberto Ledesma-Orozco, University of Guanajuato, Mexico.
- Work: New Conceptual Bolted Composite Joint.
- Task: Designing a new composite joint that meets the following conditions: no slip, bearing failure, lower weight and cost, and easy manufacturing. This analysis was developed with the following simulation software: Mechanical APDL and CATIA.

Mexican Academy of Sciences Jun 2017 – Aug 2017
Summer undergraduate research program

- Research advisor: Dr. Abel Hernandez-Guerrero.
- Work developed: Evolutionary Algorithms Based Optimization of Heat Sinks and Pressure Drop.
- Task: Heat transfer and pressure drop were optimized applying evolutionary algorithms. This analysis was developed with the following simulation software: Fluent (ANSYS), SOLIDWORKS and MATLAB.

University of Guanajuato at Salamanca, Mexico Aug 2016 – Dec 2016
Undergraduate research intern

- Research advisor: Dr. C. Eduardo Damian-Ascencio.
- Work developed: Construction of a 2D Numerical Model for PEM Fuel Cells Using the Finite Volume Method.
- Task: In this project, a two-dimensional numerical model was developed to predict the transport phenomena in PEM fuel cells. Software used: MATLAB.
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WORK EXPERIENCE

Company: Sumitomo Corporation, Design Group.
DATE: August 2017 – December 2018
Role: Mechanical Designer
Task: Modeling mechanical parts and stress-strain analysis.

EXTRACURRICULAR COURSES

School of Evolutionary Computing — Oct 2017
Completion certificate granted by the Research Center in Mathematics (CIMAT) — Nov 2016

Computer Numerical Control Training Course (CNC) — Jul 2016
Completion certificate granted by the Mexican Department of Education (SEP)

Fluent and Labview Courses — Jan 2016
Completion certificate granted by ASME-SOMIM, Division of Engineering Campus Irapuato-Salamanca, University of Guanajuato

MENTORING AND LEADERSHIP

Professor Cano-Andrade's Research Group Mentor and Computer Systems Manager — *Jan 2019-Present*, *Guanajuato, Mexico*

- Mentored several undergraduate students in topics related with numerical analysis, computational models, and results interpretation. My role was to provide professional and technical guidance during the development of the simulations and the data analysis.

First Meeting of Creativity and Innovation, SICES — *October 2017*
Participant — *Guanajuato, Mexico*

- Innovation, creativity and technology competition.

E3Fair — *May 2017*
Organizer and Participant — *Guanajuato, Mexico*

- As part of the activities of the Pi Tau Sigma and ASME student chapter from the University of Guanajuato, the first engineering and technology fair was organized with the purpose of increasing interest in engineering and technology in middle school students.

Funder and Member of the Guanajuato Beta Theta Student Chapter of the Mechanical Engineering Honors Society Pi Tau Sigma. — *February 2015*, *Guanajuato, Mexico*

- In 2015, the first international chapter of the mechanical engineering honors society Pi Tau Sigma was founded; this chapter is the first student chapter of a university in Mexico.

HONORS AND AWARDS

- Finalist, "First Meeting of Creativity and Innovation" in the category of science and technology, granted by the Mexican Education Organization (SICES), 2017.
- Academic Merit Award, granted by the University of Guanajuato to the student with highest GPA in the mechanical engineering undergraduate program, 2015, 2016, 2017 and 2018.

SCHOLARSHIPS

- Awarded a scholarship by the University of Guanajuato to conduct an intercultural exchange program to visit UC Davis facilities.
- Awarded a scholarship by the University of Guanajuato to conduct undergraduate research, fall 2016, 2017, and 2018.

CONFERENCE AND WORKSHOPS

- Attendance to the 5th Encounter of Young Researches, Guanajuato Gto. September 27, 2017.
- Attendance to the Symposium of Renewable Energies and Thermal Science: Constructal Law, Salamanca Gto. March 16-17, 2017.
- Attendance to the Symposium of Renewable Energies and Thermal Science, Salamanca Gto. February 9-12, 2016.
- Participation in the workshop "Solar Desalinization: Is it a Competitive Alternative?" imparted by Dr. Greg Kowalski from Northeastern University, Salamanca Gto. February 11-12, 2016.
- Participation in the workshop "Some Preliminary Material for the Study of Bifurcation in Fluid Flow" imparted by Dr. Enrico Sciubba from Universitá di Roma "La Sapienza", Salamanca Gto. February 11-12 2016.

SKILLS

Software

- Drawing and manufacturing: AUTOCAD, CATIA, SOLIDWORKS, MASTERCAM.
- Programming: C++, MATLAB, Phyton
- CFD analysis: Fluent.
- Finite Element Analysis: Mechanical APDL.
- Meshing Software: ANSYS MESHING and ICEM.
- Statics and design of experiments: Minitab, PROMODEL.

Languages

- Spanish (native language).
- English (professional proficiency).

MEMBERSHIPS

- ASME Student Membership, September 2014 –present.
- Member of the Society of Honor and Excellence PI TAU SIGMA Chapter Guanajuato Beta Theta of the University of Guanajuato

REFERENCES

Dr. Sergio Cano Andrade
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