

JORGE A. ACUÑA

14626 Grenadine Drive, Unit 1, Tampa, FL. 33613

(+1) (813) 808-0956 ◊ jorge@usf.edu

<https://www.linkedin.com/in/jorge-acuna/>

RESEARCH INTEREST

Passionate about learning and developing new methods that help solve real problems in various areas, such as healthcare and energy.

Apply Operations Research and Data Analytics to Increase Efficiency in Healthcare Systems: Defining, formulating, and solving models representing human-system interactions in health systems through Game Theory, Multi-Objective Optimization, Markov Decision Process, and Data Science methods.

EDUCATION

University of South Florida, Tampa, FL, USA.

August 2016 - July 2021

Ph.D., Industrial Engineering. Advisor: Dr. Jose L. Zayas-Castro.
Department of Industrial and Management Systems Engineering.

GPA: 3.84

University of South Florida, Tampa, FL, USA.

August 2016 - May 2018

M.Sc., Industrial Engineering. Advisor: Dr. Jose L. Zayas-Castro.
Department of Industrial and Management Systems Engineering.

GPA: 3.73

Alpen-Adria-Universitat, Klagenfurt, Austria

August 2013 - March 2014

Engineering in Applied Informatics (Scholarship to study abroad).

Total Credits: 28

Universidad de La Frontera, Temuco, Chile

March 2010 - August 2015

B.S & Professional Degree, Civil Industrial Engineering with a Minor in Mechanics.

Grade: 6.4 out of 7.0

PUBLICATIONS

Jorge A. Acuna, Jose L. Zayas-Castro, Hadi Charkhgard (2019). Ambulance Allocation Optimization Model for the Overcrowding Problem in US Emergency Departments: A Case Study in Florida. Socio-Economic Planning Sciences. <https://doi.org/10.1016/j.seps.2019.100747>

Jorge A. Acuna, Jose L. Zayas-Castro, Felipe A. Feijoo, Sriram Sankaranarayanan, Rodrigo Martinez, Diego A. Martinez. The Waiting Game: How Cooperation between Public and Private Hospitals can Help Reduce Waiting Lists. Health Care Management Science. (Accepted, pending publication)

In Preparation

- **Jorge A. Acuna**, Felipe A. Feijoo, Jose L. Zayas-Castro. A Bilevel-Nash-in-Nash Model for Hospital Mergers in Health Care Markets: A Key to Affordable Care. Target Journal: Health Care Management Science. (To be submitted in July 2021)
- **Jorge A. Acuna**, Hung Nguyen, Jose L. Zayas-Castro. Design and Optimization of Admission Policies with Dynamic Capacity to Avoid Hospital Congestion (Working title). Target Journal: European Journal of Operational Research.
- **Jorge A. Acuna**, Weimar Ardila, Jose L. Zayas-Castro. Prediction Models for Inpatient Policy Admissions through a Desegregated Length of Stay using Machine Learning Algorithms. (Working title). Target Journal: Annals of Emergency Medicine.

- Nancy Diaz-Elsayed, **Jorge A. Acuna**, Wainella Isaacs, Bernard Batson, Tramaine Polk, Jose L. Zayas-Castro. Building Inclusive Excellence in STEM: Lessons Learned from a Sloan University Center of Exemplary Mentoring (UCEM). (Working title). Target Journal: Journal of Engineering Education. (To be submitted in July 2021)

Conference Proceedings and Presentations

- **Jorge A. Acuna**. "Mergers and Competition in Healthcare Markets: A Key to Affordable Care." In INFORMS Healthcare, Virtual, 2021.
- **Jorge A. Acuna**. "The Health Systems Waiting Problem – Strategic Modeling To Improve Patient Access." Universidad Autónoma del Caribe, Barranquilla, Colombia, 2021.
- **Jorge A. Acuna**, Jose L. Zayas-Castro. "A Strategic Gaming Model for Health Price Negotiations Markets: Policies to Encourage Competition." In INFORMS Annual Meeting, Virtual, 2020.
- **Jorge A. Acuna**, Jose L. Zayas-Castro, Felipe A. Feijoo, Sriram Sankaranarayanan, Diego A. Martinez. "The Waiting Game - How Public And Private Hospitals Should Work Together To Reduce Waiting Lists." In INFORMS Annual Meeting, Seattle, WA, 2019.
- **Jorge A. Acuna**, Hung Nguyen, Jose L. Zayas-Castro. "Optimization of Admission Policies with Dynamic Capacity in Inpatient Ward Units." In INFORMS Annual Meeting, Seattle, WA, 2019.
- **Jorge A. Acuna**, Jose L. Zayas-Castro, Felipe A. Feijoo, Sriram Sankaranarayanan, Diego A. Martinez. "The Public Healthcare, the Private Healthcare, and the Waiting Game: Evidence from Strategic Gaming Models of Two-tier Health Systems." In INFORMS Healthcare at MIT, Cambridge, MA, 2019.
- **Jorge A. Acuna**, Jose L. Zayas-Castro. "A Strategic Modeling for the Allocation of Ambulance Request to Emergency Departments in the United States System." In INFORMS Annual Meeting, Phoenix, AZ, 2018.
- **Jorge A. Acuna**, Martha Ramirez Valdivia. "Study of the relationship between Quality Management and Data Envelopment Analysis." In XI Chilean conference of operational research OPTIMA, Antofagasta, Chile, 2015.

RESEARCH EXPERIENCE

University of South Florida - University Center of Exemplary Mentoring (UCEM)

Role: Research Assistant - Collaboration Alfred P. Sloan Foundation

Summer 2017 - Present

- Assist in writing grants proposals and reports on projects that support increased participation of under-represented students in STEM.
- Coordinate recruitment, retention and professional development activities for students (graduate and undergraduate) and faculty.

University of South Florida - Hillsborough County Tax Collector

Role: Research Assistant - Simulation and Data Analysis

Spring 2018 - Spring 2019

- Forecast the demand of the services per hour, day, and month using ARIMA and machine learning algorithms.
- Implement agent based simulation in ARENA to optimize scheduling and staffing to increase efficiency.

University of South Florida - College of Engineering

Role: Research Assistant - Project management

Spring 2017

- Design the methodology and define the steps to build the best distance education source for producing highly effective college of engineering graduates.

Universidad de La Frontera - Department of Mechanical Engineering

Role: Undergraduate Research Assistant - Optimization

Spring 2012 - Summer 2013

- Optimize the combustion chamber's design of boilers to reduce pollution in the Araucania region (Chile).

PROFESSIONAL EXPERIENCE

University of South Florida, Tampa

Fall 2016 - Present

Research Assistant

- College of Engineering.

University of South Florida, Tampa

Summer 2020

Instructor

- ENG4450 Introduction to Linear Systems.

Evaluation 4.1/5

University of South Florida, Tampa

Spring 2017

Teaching Assistant

- EIN4891 Senior design project II

Universidad de La Frontera, Temuco (Chile)

August 2015 - August 2016

Project Engineer

- Vice-Rector's office of Research and Graduate Studies - International Affairs Office.

Universidad de La Frontera, Temuco (Chile)

March 2015 - August 2015

Project Engineer

- National and International Mobility Office.

Intergas, Los Angeles (Chile)

January 2015 - March 2015

Project Engineer Intern

- Natural gas company.

Universidad de La Frontera, Temuco (Chile)

Fall 2012 - Summer 2013

Undergraduate Teaching Assistant

- Department of Mechanical Engineering.

RELEVANT COURSEWORK

Optimization: Linear Programming & Network Optimization (Fall 2016), Integer Programming (Fall 2017), Multi-Objective Optimization (Spring 2018), Nonlinear optimization & Game Theory (Spring 2018), Revenue Management & Pricing (Spring 2019), Markov Decision Processes (Spring 2019).

Analytics: Statistics Methods I (Fall 2016), Advanced Analytics I (Spring 2017), Design of Experiments (Fall 2017), Deep Learning (Spring 2018), Reliability Data Analysis (Fall 2018), Engineering Analytics (Fall 2018), Bayesian Data Analysis (Fall 2019).

COMPUTER AND OTHER SKILLS

Methodology: Multi-objective optimization, Game Theory, Bi-level optimization, Sequential optimization, Stochastic dynamic programming, Predictive Modeling, Survival Analysis, Machine Learning, Deep Learning, Agent-based Simulation, Geographic Information System, Bayesian Data Analysis, Generalized Linear Models, Linear Programming, Mixed-integer programming, Revenue management, Design of Experiments.

Programming and Software: JULIA (Advanced, 4 years. Libraries: Gurobi, CPLEX, SCIP, MathProg-Base), R (Advanced, 4 years. Libraries: dplyr, Hmisc, ggplot2, fda, caret, ROCR, glm, gbm, xgboost, survival,

survminer, e1071, neuralnet), SAS (Intermediate, 2 year), Python (Intermediate, 2 year. Libraries: numpy, pandas, scikit-learn, tensorflow, keras), ARENA (Intermediate, 2 years), LINDO, MATLAB, ArcGIS, WinBUGS, LaTeX, MS Office (Excel, PowerPoint, Word, Visio).

Communication: Experienced in writing analytical reports and research publications, presenting to interdisciplinary audience, teaching graduate/undergraduate courses, fluent in English, Spanish, and Italian. Basic knowledge of German.

AWARDS AND HONORS

2021 - University of South Florida, Dissertation Completion Fellowship.

2019 - Finalist, poster competition, INFORMS annual meeting 2019 (Seattle).

2015 - Universidad de La Frontera Award, student with the best grades and performance within academia.

2014 - First Place, Class Ranking Bachelor's Program.

2013 - Scholarship Alpen Adria Universitat Klagenfurt, Austria.

EXTRACURRICULAR ACTIVITIES AND ASSOCIATIONS

- **Vice-President**, INFORMS USF Student Chapter (August 2020 - July 2021).
- **Member**, Health Application Society (HAS), (2018-Present).
- **Member**, The Institute for Operations Research and the Management Sciences (INFORMS), (2018-Present).
- **Public relationship & Webmaster**, INFORMS USF Student Chapter: The chapter was recognized for its activities and mission on a Magna-cum Laude level at INFORMS Annual Meeting in Phoenix, Arizona. (2017-2018)
- **Expositor**, Engineering Expo at USF (2016-Present).
- **Instructor R programming/Volunteer**, Boot Camp INFORMS Student Chapter at USF (2016-Present).
- **Director**, Workshop "Una mirada hacia el futuro" Ruta Industrial, Universidad de La Frontera (2014).
- **Vice-President/Founding member**, Ruta Industrial, Universidad de La Frontera (2012-2013).
- **President**, Electoral Court of Industrial Engineering Students, Universidad de La Frontera (2010).