Raul Astudillo

Curriculum Vitae

Contact and citizenship information

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Citizenship: Mexican

Education

2016-current **Cornell University**, *Ithaca, NY*.

Ph.D. in Operations Research and Information Engineering

- Expected graduation date: July 2021
- Advisor: Peter I. Frazier
- Minors: Computer Science and Statistics

2011-2016 **Center for Research in Mathematics (CIMAT)**, *Guanajuato, Mexico*.

B.S. in Mathematics. GPA: 9.7/10

- Advisor: Victor Manuel Perez-Abreu
- Highest GPA of the class 2011-2016

Research interests

Bayesian Optimization, Preference Learning, Simulation Optimization, Design of Experiments, Optimal Learning

Selected graduate coursework

- Applied Stochastic Processes
- Mathematical Programming
- Convex Optimization
- Bayesian Machine Learning
- Statistical Learning Theory
- Bayesian Statistics and Data Analysis
- Advanced Machine Learning
- Numerical Methods for Data Science

Publications and working papers

S. Cakmak, R. Astudillo, P.I. Frazier and E. Zhou, "Bayesian Optimization with Risk Measures", *Working Paper*.

R. Astudillo and P.I. Frazier, "Multi-Attribute Bayesian Optimization With Interactive Preference Learning", *International Conference on Artificial Intelligence and Statistics, 2020*.

R. Astudillo and P.I. Frazier, "Bayesian Optimization of Composite Functions", *International Conference on Machine Learning, 2019*.

R. Astudillo and P.I. Frazier, "Multi-Attribute Bayesian Optimization under Utility Uncertainty", *NIPS workshop on Bayesian Optimization, 2017*.

Selected presentations

Feb 2020 "Interactive Bayesian Optimization With Uncertain Preferences", *Facebook Adaptive Experimentation Workshop, New York City, NY*.

Dec 2019 "Bayesian Optimization of Composite Functions", *Winter Simulation Conference, National Harbor, MD*.

July 2019 "Bayesian Optimization of Composite Functions with Application to Computationally Expensive Inverse Problems", *Applied Inverse Problems Conference, Grenoble, France*.

June 2019 "Bayesian Optimization of Composite Functions", *International Conference on Machine Learning, Long Beach, CA*.

May 2019 "Bayesian Optimization of Composite Functions", *2nd Uber Science Symposium, San Francisco, CA*.

Nov 2018 "A Utility Uncertainty Approach to Multi-Attribute Bayesian Optimization", *INFORMS Annual Meeting, Phoenix, AZ*.

Dec 2017 "Multi-Attribute Bayesian Optimization under Utility Uncertainty", *NIPS workshop on Bayesian Optimization, Long Beach, CA*. (contributed poster)

Teaching experience

Cornell University, *USA*.
Teaching Assistant

Fall 2018	Statistical Principles	Graduate
Spring 2017	Engineering Stochastic Processes	Undergraduate
Fall 2016	Basic Probability and Statistics	Undergraduate

Center for Research in Mathematics (CIMAT), *Mexico*.
Teaching Assistant

Fall 2015	Measure Theory and Probability	Graduate

University of Guanajuato, *Mexico*.
Teaching Assistant

Spring 2015	Complex Analysis	Undergraduate

Industry experience

Jul-Aug 2019 **ExxonMobil Upstream Research Company**, *Houston, TX*.
Developed novel Bayesian optimization algorithms for improving reservoir development planning under geological uncertainty.
- Advisors: Liz Curry and Xiao-Hui Wu

Jun-Aug 2018 **ExxonMobil Upstream Research Company**, *Houston, TX*.
Developed novel Bayesian optimization algorithms for improving reservoir development planning under geological uncertainty.
- Advisors: Damian Burch and Xiao-Hui Wu

Selected awards

2015 Second Prize - XXII International Mathematics Competition for University Students (IMC), Blagoevgrad, Bulgaria.

2014 Third Prize - VI Iberoamerican Interuniversity Mathematics Competition (CIIM), San Jose, Costa Rica.

2014 Third Prize - XXII International Mathematics Competition for University Students (IMC), Blagoevgrad, Bulgaria.

2014 *Orgullo UG* Academic Excellence Award - University of Guanajuato.

2013 Third Prize - XVI Iberoamerican Mathematics Olympiad for University Students (OIMU), Guanajuato, Mexico.

2012-2016 Academic Excellence Fellowship - Center for Research in Mathematics.

Computer skills

Development MATLAB, Python, R

Tools Git, LaTeX, Microsoft Office

Languages

English (proficient), Spanish (native)