

# Saul Toscano Palmerin

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CONTACT                    [toscano.saul@gmail.com](mailto:toscano.saul@gmail.com)  
INFORMATION            website: <http://toscanosaul.github.io/saul/>

EXPERIENCE            **Citadel Securities**, London, UK  
Quantitative Researcher, September 2020-Present

- I develop alpha signals for options analyzing high frequency data and using machine learning algorithms.

**Microsoft**, Bellevue, USA  
Applied Scientist, February 2020 - September 2020

- I developed state-of-the-art machine learning algorithms for speech recognition.

**Two Sigma**, NYC, USA  
Quantitative Researcher Intern, May 2019 - August 2019

- I developed a market impact simulator based on the latent order book model.
- I worked on the optimal execution problem with forecasts and the linear propagator model using dynamic programming.

**Uber**, San Francisco, USA  
Data Scientist Intern, June 2016 - June 2017

- I was a lead developer for a major redesign of Uber's pricing system, route-based pricing <https://marketplace.uber.com/pricing/route-based-pricing>

EDUCATION            **Cornell University**, Ithaca, USA  
Ph.D. in Operations Research and Information Engineering,  
GPA: 4.2/4.3, December 2019

- Minors: Computer Science and Statistics
- Dissertation: "Grey-Box Bayesian Optimization: Improving Performance by Looking Inside the Black-Box"

**Universidad de Guanajuato**, Mexico  
B.A. in Mathematics, GPA: 9.71/10, June 2013

- Highest GPA of the class 2008-2013
- Excellence Fellowship awarded by the Mexican government

PAPERS                S. Toscano-Palmerin and P.I. Frazier, "Bayesian Optimization with Expensive Integrands", 2018. <https://arxiv.org/abs/1803.08661>

S. Toscano-Palmerin and P.I. Frazier, "Effort Allocation and Statistical Inference for 1-dimensional Multistart Stochastic Gradient Descent", *Winter Simulation Conference*, 2018.

J. Wu, S. Toscano-Palmerin, P. I. Frazier and A. G. Wilson, "Practical Multi-fidelity Bayesian Optimization for Hyperparameter Tuning", *Conference on Uncertainty in Artificial Intelligence*, 2019. <https://arxiv.org/pdf/1903.04703.pdf>

S. Toscano-Palmerin and P.I. Frazier, “Stratified Bayesian Optimization”, *Proceedings of the 12th International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing (MCQMC)*, 2017. <https://arxiv.org/abs/1602.02338>

S. Toscano-Palmerin and P.I. Frazier, “Asymptotic Validity of the Bayes-Inspired Indifference Zone Procedure: the Non-Normal Known Variance Case”, *Winter Simulation Conference*, 2015. <http://arxiv.org/pdf/1508.07720.pdf>

## TEACHING

### Cornell University, Instructor

- ❑ Big Data Technologies (ORIE 5270), Spring 2018, Fall 2018, Masters level.
  - Course rating: 3.7/5.0; Mean course rating (College of Engineering, Cornell University): 3.63/5.0
  - Topics: Statistical and software tools for data mining of massive datasets, graphical display, machine learning, and natural language processing.
- ❑ Computational Methods in Operations Research (ORIE 6125), Spring 2018, PhD level.
  - Topics: Computational tools to perform research in operations research and related fields.

## AWARDS

2014–2015      Mexican Government Fellowship  
2013–2014      McMullen Fellowship

## SOFTWARE

### Bayesian Global Optimization (BGO) Package

Python-based Bayesian global optimization software.  
[https://github.com/toscanosaul/stratified\\_bayesian\\_optimization](https://github.com/toscanosaul/stratified_bayesian_optimization)

### New York City’s Citi Bike System Simulation

Python-based queuing simulation based on New York City’s Citi Bike system.  
<https://github.com/toscanosaul/BGO/tree/master/CitiBike>

## RELEVANT SKILLS

Development: Python, Java, R, C, C++, Matlab, PySpark/MLlib, SQL  
Languages: English, Spanish.