

# IVAN E. PEREZ

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## TECHNICAL STRENGTHS

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<b>Computer Languages</b>	Python, R, Mathematica
<b>Protocols &amp; APIs</b>	JSON, REST, ASyncIO, CoPrA, WebSocket, scikit-learn, TensorFlow
<b>Databases &amp; Tools</b>	Pandas, MongoDB, MySQL, SQLite
<b>Certifications</b>	FDNY C-14, Passed CFA Level 1

## EDUCATION

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**Hunter College - CUNY**, New York, NY May 2020  
M.A. in Statistics & Applied Mathematics (Conc. Math. Finance) GPA 3.41/4.00

Awards: Joseph A. Gillette Memorial Prize

Relevant Coursework: Adv. Probability Theory I & II, Stochastic Methods of Finance, Mathematical Statistics, Stochastic Optimization by Computer Simulation, Numerical Methods.

**Boston University**, Boston, MA May 2014  
B.A. in Chemistry (with ACS Certification)

Awards: UROP Student Research Award, UROP Faculty Matching Grant.

Graduate Coursework: Adv. Coordination Chemistry I, Organic Spectroscopy, Organic Reaction Mechanisms.

Research: Organic Synthesis towards probing of Prion Protein Scrapie (PrP<sup>Sc</sup>) proliferation inhibitors.

## WORK EXPERIENCE

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**City University of New York** New York, NY  
*Adjunct Lecturer - Dept. of Chemistry (Hunter College)* February 2017 - Present

- Lead Organic Chemistry Lab sections by teaching organic synthesis techniques, and laboratory safety.
- Instruct students in scientific report writing, data collection, and analysis for reproducible laboratory research.
- Sr. College Laboratory Technician, Dept. of Chemistry (NYCCT)* August 2017 - August 2018
- Coordinated with eight professors for preparation and maintenance of seven undergraduate laboratory courses.
- Trained students and faculty in proper use and maintenance of analytical instrumentation. (e.g., GC/MS)
- Implemented chemical hygiene code by revising execution and documentation of undergraduate lab experiments.

**Permanent Mission from Dominican Republic to the U.N.** New York, NY  
*Adviser - Second Committee* March 2019 - September 2019

- Assisting team of five delegates with analysis of statistical data produced by subsidiary organs (e.g. UNSD).
- Curating information from Second Committee meetings for facile interpretation by delegates, and ambassadors.

**Cabot Corporation** Billerica, MA  
*Research Associate - Performance Research & Development* June 2014 - October 2015

- Developed synthetic routes to novel Carbon Black (CB) treating agents for tire tread-wear applications.
- Improved feasibility of ATT<sub>2</sub> related treating agent by reducing two steps and increasing yield from 36% to 85%.
- Collaborated with Analytical Chemistry Dept. to analyze kinetic factors affecting treatment efficiency of CB.
- Adapted published research to develop scalable preparation of three next generation CB treating agents.

## PROJECTS

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**A Study of CUSUM Statistics on Bitcoin Transactions** Thesis Project

- Implemented CUSUM algorithms for Compound Poisson processes to detect volatile trading periods.
- Applied GLMs and significance testing to associate volatile trading periods with an increased price momentum.
- Developed tools in Python to collect and analyze arriving market orders in real time.

**Parameterization of Heston SDE via Stochastic Optimization** Stochastic Opt. Final Project

- Derived Infinitesimal Perturbation Analysis (IPA) estimators towards the development of algorithms that reliably calibrate Black-Scholes-Merton (BSM) and Heston model parameters from observed derivatives' prices.
- Simulated asset and derivative price dynamics to estimate implied model parameters with over 90% accuracy.