# Andrew Garcia

Gainesville, FL

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www.github.com/andrewrgarcia/CV/.../andrewg

## Education

**University of Florida** — **Gainesville, FL**
*Ph.D. Chemical Engineering* — *2017–present*

**University of Florida** — **Gainesville, FL**
*M.S. Chemical Engineering*

**University of Miami** — **Coral Gables, FL**
*B.S. Chemistry*

## Skills

**Programming**: Python, Git, LaTeX, MATLAB, JavaScript, Visual Basic

**Software**: Minitab, ImageJ, Office Suites, VESTA, Diamond, LIMS

## Experience

**University of Florida** — **Gainesville**
*Graduate Assistant* — *08/2017–present*

- Research Assistant - Topic: Transport measurements of gas diffusion through metal organic framework (MOF) channels and synthesis thereof.
- Teaching assistant for the Computer Model Formulation(COT3502) and Chemical Kinetics and Reactor Design (ECH4504) chemical engineering courses for the Fall 2017–Spring 2018 semester.

**Xerox** — **Webster**
*Associate Engineer, NY* — *07/2015–07/2017*

- Optimized toners to meet standards demanded by client(s) by conducting/analyzing several factorial experiments (DOEs)
- Contributed to Xerox's intellectual property portfolio by passing invention submissions focused on toner quality improvement.

**University of Florida** — **Gainesville**
*Research Assistant* — *12/2013–06/2015*

- Adapted a process which was used to support the submission of a $45,000 commercialization proposal in June 2014.
- Materialized primary goals of research project, making helpful contributions to the passing of a larger **NIH R01 funded** (about $180,000 for the year 2015) project.
- Co-invented a technology highly applicable to the $1.68 billion dollar market of nerve repair and regeneration.

## Data Science / Programming Exp. and Projects

**2018–present Ph.D. Research (University of Florida)**:
o Development of a kinetic Monte Carlo (kMC) algorithm for a MOF crystallization process (Python) and an analytical expression thereof.
o Development of chemical equilibrium reaction networks to model concentration of chemical species with respect to system changes based on a system of non-linear equations solver (Python)

**Spring 2018 COT3502 TA (University of Florida)**:
o Assisted students with programming development (Python) and theoretical understanding; scripts returning calculations and data structures through the implementation of logical expressions, as well as solving equations through the use of numerical analysis theory (Gaussian elimination, Newton-Raphson, Runge-Kutta, etc.)

**2015-2017 Engineer (Xerox)**:
o Provided estimates of spread (standard deviation) through factorial and simple Monte Carlo (sMC) methods for a system level design which was implemented at the production scale.
o Created a Monte Carlo simulation algorithm through Python which predicted the results of a **non-disclosed** characterization method. Algorithm was also translated to Excel in a low-level manner by tabulating functions into cells. If implemented it would be saving the company some valuable employee time.

**2014-2015 M.S. Research (University of Florida)**:
o Proposed a model for crosslinked microsphere size from power-law fits through Minitab and published an **article** thereof based on fundamental theory
o Prepared all publication plots using Python and submitted an **entry** to the 2015 Scipy John Hunter plotting contest

**Fall 2014 M.S. Student (University of Florida)**:
o Learned Python and worked on **3** projects which integrated Python to solve problems on statistical mechanics:
(1) Calculations of a polymer's hydrodynamic radius from random walk theory, making use of probability density functions.
(2) Simulation of a 2-dimensional Ising Model.
(3) Calculations of Internal Energy and Pressure from Monte Carlo simulations of a 2-D Lennard-Jones Model.

## Publications

**1**: AR Garcia, C Lacko, C Snyder, AC Bohorquez, CE Schmidt, C Rinaldi. (2017) "Processing-size correlations in the preparation of magnetic alginate microspheres through emulsification and ionic crosslinking" *Colloids Surf., A*. 529:119-127

**2**: AR Garcia (2015) "Synthesis of dissolvable magnetic microspheres for tissue scaffold applications (MS Thesis)" *University of Florida*

**3**: AR Garcia, I Rahn, S Johnson, R Patel, J Guo, J Orbulescu, M Micic, JD Whyte, P Blackwelder, RM Leblanc.(2013) "Human insulin fibril-assisted synthesis of fluorescent gold nanoclusters in alkaline media under physiological temperature" *Colloids Surf., B*. 105:167-172

**4**: W Liu, S Johnson, M Micic, J Orbulescu, JD Whyte, AR Garcia, RM Leblanc.(2012) "Study of the aggregation of human insulin langmuir monolayer" *Langmuir*. 28(7):3369–3377

## Patents and Inventions

**2018**: Patent: C Rinaldi, CE Schmidt, C Lacko, Z Khaing, AR Garcia "Magnetically templated tissue engineering scaffolds and methods of making and using the magnetically templated tissue engineering scaffolds" **US Patent *US20180133372A1***, PCT filed May 11, 2016

**2016-2017**: Xerox Trade Secrets: (6 total) Primary author of **5**

## Certificates

### Technical

**09/2016**: **Design for Six Sigma IDOV Green Belt**, Xerox

**2015–2018**: **Lean Six Sigma DMAIC Green Belt**, 2221-4545, IIE

**07/2013**: **Process Engineering Certificate**, University of Florida

### First Aid

**2015–2017**: **Healthcare Provider**, NY15657, American Heart Association

**2015–2017**: **Heartsaver®First Aid**, NY15657, American Heart Association