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