Marcel P. Nunez

79 Ray St., Newark, DE 19711 954-661-2830 mpnunez@udel.edu

Education

University of Delaware (UD) — Newark, DE
Ph.D. in Chemical and Biomolecular Engineering — expected Spring 2017
GPA: 3.8 / 4.0

Massachusetts Institute of Technology (MIT) — Cambridge, MA
B.S. in Chemical Engineering and Mathematics — Jun 2012
Minor: Economics
GPA: 4.5 / 5.0

Research and Industrial Experience

University of Delaware — Newark, DE
Graduate Research Assistant — 2012-present
Thesis Advisor: Dionisios G. Vlachos
Thesis Title: Uncertainty Quantification in Stochastic Multiscale Models of Heterogeneous Catalysis

- Developed a parametric sensitivity analysis method for multiscale kinetic Monte Carlo (KMC) and implemented the technique in a novel code
- Developed a multi-objective framework for optimizing catalyst structure using descriptors which incorporated a detailed model of the catalyst surface, reaction network, and stability requirements

Los Alamos National Laboratory (LANL) — Los Alamos, NM
Student Intern — Summers 2011 and 2012

- Investigated molten composition B rheology by conducting falling ball viscometer experiments, simulating the experimental system in COMSOL Multiphysics, and fitting a viscosity model to the data

Promex Industries — Santa Clara, CA
Process Engineering Intern — Jan 2011

- Conducted plasma cleaning, sandblasting, and wire bond testing experiments guided by statistical design of experiments
- Designed a metal cleaning procedure needed to manufacture a new semiconductor packaging product

MIT Center for Biomedical Engineering — Cambridge, MA
Undergraduate Researcher — Aug 2009-Aug 2010

- Purified olfactory receptor proteins using wet lab techniques for use in odorant sensor devices
- Designed and tested odorant sensor devices for specificity, sensitivity, and stability

MIT Buildings Technology Laboratory — Cambridge, MA
Undergraduate Researcher — Jun-Aug 2009

- Developed a graphical user interface using C# for CoolVent, a building heat flow simulation tool available online

Skills

- Computer Programming: Matlab, Fortran, Python, Java, C#, Scheme
- Simulation: Uncertainty quantification, Optimization, Kinetic Monte Carlo, Density functional theory (VASP), Multiphysics simulation (COMSOL)
- Communication: Microsoft office, LaTeX
- Leadership: *Research assistant* - directed group meetings and organized schedule on a shared calendar, organized group software on a collaboration/distribution platform (Github), conducted training sessions on kinetic Monte Carlo, mentored new graduate researchers, *Teaching assistant* - conducted multiple lectures and review sessions
- Foreign Language: Spanish