Richard Boeri Decal

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Education

M.S. Data Science — Sarasota, FL
New College of Florida — Aug. 2017 — May 2019

Artificial Intelligence Engineer Nanodegree
Udacity — Feb. 2017 — May 2017

Post-baccalaureate researcher — Seattle, WA
University of Washington — Oct. 2014 — Jan. 2016

B.A., Chemistry/Biology (with honors) — Sarasota, FL
New College of Florida — Aug. 2007 — May 2011

Early admission in lieu of 4th year high school — Jupiter, FL
Harriet L. Wilkes Honors College — Sep. 2006 — May 2007

Academic Projects

Modeling Hospital Patient Trajectories — Sarasota, FL
Florence A. Rothman Institute — Au. 2018 — Dec. 2018

I am studying the interactions of chronic conditions with heart failure using clustering and finite state modeling.

Automated Tracing of Neurons — Seatle, WA
Allen Institute for Brain Science — June 2018 — Aug. 2018

Implemented proof of concept for automatically tracing brain cell morphologies using deep reinforcement learning.

Multisensory Integration in Mosquitos — Seatle, WA
Fairhall Lab, University of Washington — Oct. 2014 — May 2016

I created agent-based dynamical models of mosquito thermal plume navigation using wind-tunnel flight data.

Humpback Whale Census — James Price Point, Australia
Kimberley Community Whale Research Project — Aug. 2012 — Oct. 2012

A community-initiated peer-review of a study conducted by an oil conglomerate at the proposed site of the world's second-largest liquefied gas processing port. Our research revealed gross discrepancies in the original study.

Honors Baccalaureate Thesis — Sarasota, FL
Walstrom Lab, New College of Florida — Aug. 2010 — May 2011

My capstone thesis project proposes a model for RNA Helicase A function in endogenous *C. elegans* RNAi pathways based on qRT-PCR experiments.

Independent Tutorials Sarasota, FL
New College of Florida Aug. 2007 — May 2011

I created courses with faculty supervision using New College's tutorial system. Highlights: "Quantitative RT-PCR", "Floridian Invasive Species", and "Synthesis of P450-like Complex".

Genomics Outreach for Minorities Project (NSF-REU) Seattle, WA
Pallanck Lab, University of Washington May 2010 — Aug. 2010

I helped establish a method to grow, stain, and image primary dopaminergic neural culture from *Drosophila* embryos in order to test whether Parkin and PINK1, proteins involved in Parkinson's disease, are recruited to depolarized mitochondria in dopaminergic neurons. This research was published in *PNAS*.

Organic Synthesis of P450-like Molecule Sarasota, FL
Scudder Lab, New College of Florida Sep. 2008 — Nov. 2009

I partially synthesized precursors to a novel high-valent iron-stabilizing macrocycle based on the active site of cytochrome P450.

Summer Undergraduate Research Program (NSF-REU) Pittsburgh, PA
McCartney Lab, Carnegie Mellon University May 2009 — Aug. 2009

I determined that APC2, a protein with probable roles in colon cancer tumorogenesis, did not interact with β-catenin of the Wnt pathway's destruction complex. I determined that APC2's conserved N-terminal domain was not essential for its proper localization. This research was published in *Genetics*.

GC and HPLC Instrumental Analysis Sarasota, FL
McCord Lab, New College of Florida Jan. 2008

An independent study project where I learned how to operate liquid chromatographs and analyze their spectra.

Publications

Burman JL, Yu S, Poole AC, **Decal RB** and Pallanck LJ. "Analysis of neural subtypes reveals selective mitochondrial dysfunction in dopaminergic neurons from parkin mutants". *Proc Natl Acad Sci USA*. 2012 Jun 26;109(26):10438-43.

Kunttas-Tatli E, Zhou M, Zimmerman S, Molinar O, Zhouzheng F, Carter K, Kapur M, Cheatle A, **Decal RB**, McCartney BM. "Destruction Complex Function in the Wnt Signaling Pathway of Drosophila Requires Multiple Interactions Between Adenomatous Polyposis Coli 2 and Armadillo". *Genetics*. 2012 Mar; 190(3):1059-75.

Decal RB. "Quantifying Small RNA Concentrations in *C. elegans*". Honors thesis, New College of Florida. May 2011. 108 pages.

Presentations

Decal RB, Burman JB, Pallanck L. "Is Parkin Recruited to Damaged Mitochondria in Dopaminergic Neurons?" Society for Advancement of Chicanos and Native Americans in

Science. Anaheim, CA. September 2010. Poster.

Decal RB, McCartney BM. "APC2 Does Not Interact with in the β-Catenin Destruction Complex". Annual Sigma Xi Conference. The Woodlands, TX. November 2009. Poster.

Decal RB, McCartney BM. "APC2 Does Not Interact with in the β-Catenin Destruction Complex". Annual Biomedical Research Conference for Minorities. Phoenix, AZ. November 2009. Poster.

Teaching & Outreach

Brain Awareness Week 2015. University of Washington, March 2015.

Upward Bound. University of Washington, July 2010.

Awards, Grants & Honors

Full tuition waver for master's program
New College of Florida Aug. 2017 — May 2019

NIH PA-12-149 Supplement Grant
University of Washington Jan. 2015 — Jan. 2016

Florida "First Generation" Scholar (two-time recipient)
New College of Florida Aug. 2009 — May 2011

Florida "Bright Futures" Scholar
New College of Florida Aug. 2007 — May 2011

Four Winds Silver Scholar
New College of Florida Aug. 2007 — May 2011

Student Research Grant
Dubois-Felsmann Research Endowment Nov. 2010

Student Travel Grant
Dubois-Felsmann Research Endowment Sep. 2009

ABRCMS Travel Award
American Society for Microbiology Aug. 2009

Honors Scholarship
Harriet L. Wilkes Honors College Sep. 2006 — May 2007

AP Scholar Award
J.P. Taravella High Apr. 2006