

Richard Boeri Decal

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Education

M.S. Data Science <i>New College of Florida</i>	Sarasota, FL Aug. 2017 — Dec. 2018
Research Fellowship <i>University of Washington</i>	Seattle, WA Oct. 2014 — Jan. 2016
B.A., Chemistry/Biology (with honors) <i>New College of Florida</i>	Sarasota, FL Aug. 2007 — May 2011
Early admission in lieu of 4th year high school <i>Harriet L. Wilkes Honors College</i>	Jupiter, FL Sep. 2006 — May 2007

Industry Work

Lead Machine Learning Engineer <i>Dendra Systems</i>	Sarasota, FL Feb. 2020 — Now
Enabling whole-ecosystem restoration using deep learning.	
Lead Data Scientist <i>PaceMateTM</i>	Sarasota, FL Jan. 2019 — Jan. 2020
Automated remote detection of cardiac arrhythmias in Internet-enabled heart implants using deep learning.	

Academic Work

Modeling Hospital Patient Trajectories <i>Florence A. Rothman Institute</i>	Sarasota, FL Au. 2018 — Dec. 2018
Data-driven characterization of interactions between chronic conditions and heart failure using clustering and finite state modeling.	
Automated Tracing of Neurons <i>Peng Lab, Allen Institute for Brain Science</i>	Seattle, WA June 2018 — Aug. 2018
Implemented proof-of-concept algorithm for automatically reconstructing brain cell morphologies from petabyte-scale microscope data using deep reinforcement learning.	
Multisensory Integration in Mosquitos <i>Fairhall Lab, University of Washington</i>	Seattle, WA Oct. 2014 — May 2016
Developed agent-based dynamical models of mosquito thermal plume navigation behavior using wind-tunnel flight data.	
Humpback Whale Migratory Census <i>Kimberley Community Whale Research Project</i>	James Price Point, Australia Aug. 2012 — Oct. 2012

Replicated a study at the proposed site of a gas processing port in Humpback calving waters. Our field research revealed gross inaccuracies in the oil conglomerate's report.

Endogenous Genetic Control

Walstrom Lab, New College of Florida

Sarasota, FL

Aug. 2010 — May 2011

Studied a genetic expression control pathway in *C. elegans*. My honors [thesis project](#) proposes a model for RNA Helicase A function in endogenous RNAi based on qRT-PCR evidence.

Role of Mitochondrial Fusion in Parkinson's

Pallanck Lab, University of Washington

Seattle, WA

May 2010 — Aug. 2010

Establish a method to grow, stain, and image primary dopaminergic neural cultures from *Drosophila* embryos. I tested whether Parkin and PINK1, proteins involved in Parkinson's disease, are recruited to depolarized mitochondria in dopaminergic neurons. This research was [published](#) in *PNAS*.

Functional Study of APC2 Protein

McCartney Lab, Carnegie Mellon University

Pittsburgh, PA

May 2009 — Aug. 2009

I determined that APC2, a protein with roles in colon cancer tumorigenesis, did not directly interact with β -catenin of the Wnt pathway's destruction complex. I disproved the theory that APC2's N-terminal domain was essential for its proper localization. This research was [published](#) in *Genetics*.

Organic Synthesis of P450-like Molecule

Scudder Lab, New College of Florida

Sarasota, FL

Sep. 2008 — Nov. 2009

Partial synthesis of a high-valent iron-stabilizing macrocycle based on the active site of cytochrome P450, with potential applications for cleaning industrial pollution.

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, Cheate 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. "A Proposal for RNA Helicase A Function in Endogenous RNA Interference Pathways". Honors thesis, New College of Florida. May 2011.

Presentations

Decal RB, Burman JB, Pallanck L. "Is Parkin Recruited to Damaged Mitochondria in Dopaminergic Neurons?" SACNAS Conference. 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". ABRCMS Conference. Phoenix, AZ. November 2009. Poster.

Teaching & Outreach

Data Analysis Mentor, Intro to Programming Nanodegree. Udacity. 2017 — 2018

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 — Dec. 2018

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