

# Richard Boeri Decal

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## Education

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

## Industry Work

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

## Academic Work

<b>Modeling Hospital Patient Trajectories</b> <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.	
<b>Automated Tracing of Neurons</b> <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.	
<b>Multisensory Integration in Mosquitos</b> <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.	
<b>Humpback Whale Migratory Census</b> <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  $\beta$ -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, Cheadle 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  $\beta$ -Catenin Destruction Complex". Annual Sigma Xi Conference. The Woodlands, TX. November 2009. Poster.

**Decal RB**, McCartney BM. "APC2 Does Not Interact with in the  $\beta$ -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 — 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