

EDUCATION

University of California, San Diego*Ph.D. Mechanical Engineering*

March 2016–present

- San Diego Fellowship (Fall 2014–Spring 2018)
- Research interests:
 - nonlocal operators and variable order systems, control and stability, nonlinear/nonconvex optimization, fluid mechanical systems
 - efficient numerical methods for the solution of variable order differential equations
 - generalized variable order models for anomalous electromagnetic dispersion dynamics

University of California, San Diego*M.S. Mechanical Engineering*

2016

- San Diego Fellowship (Fall 2014–Spring 2018)
- Courses (GPA: **3.88**):
 - MAE 280 A/B: Linear Systems and Control
 - MAE 288 A: Optimal Control
 - MAE 283 A: System Identification (open-loop)
 - MAE 283 B: Approximate Identification (closed-loop) and Control [Spring 17]
 - MAE 284: Robust and Multivariable Control
 - MATH 271 A/B/C: Nonlinear Optimization (UC/EQC/IEQC)
 - MAE 210 A/B/C: Fluid Mechanics and Hydrodynamic Stability
 - MAE 208: Engineering Mathematics

University of California, San Diego*B.S. Mechanical Engineering*

2014

- Provost Honors, Warren College Honor Society
- Selected Courses:
 - MAE 143 A/B/C: Signals, CT/DT Control Systems
 - MAE 144: Embedded Control and Robotics
 - MATH 120 A: Complex Analysis

MiraCosta Community College*A.A. Pre-Engineering*

2011

- Medal of Honor Scholarship
- President's List, President's Permanent Honor Roll
- President, Phi Theta Kappa Honor Society
- All California Academic Team

RESEARCH
EXPERIENCE**Graduate Student Researcher, Coimbra Energy Group**

July 2014–present

University of California, San Diego

- Novel research: modeling, control, and stability of nonlocal variable-order mechanical systems

	Undergraduate Student Researcher, Coimbra Energy Group <i>University of California, San Diego</i> <ul style="list-style-type: none"> - Clear-sky model development - Implemented irradiance data weather classification algorithm - Developed low-cost, self-sustaining portable irradiance sensing/logging station 	2012–2014
	Independent Researcher, MAE Department <i>University of California, San Diego</i> <ul style="list-style-type: none"> - Developed novel forecasting method for chaotic determinant time series 	Winter 2013–Spring 2013
PUBLICATIONS	Orosco, J. and Coimbra, C.F.M.: On the Control and Stability of Variable Order Mechanical Systems. <i>Nonlinear Dynamics</i> (2016) Link - PDF	
MANUSCRIPT REVIEW	Elsevier's <i>Energy</i>, The International Journal <ul style="list-style-type: none"> - Impact factor: 4.844 (2014) 	2014–Present
	Springer's <i>Nonlinear Dynamics</i>, An International Journal of Nonlinear Dynamics and Chaos in Engineering Systems <ul style="list-style-type: none"> - Impact factor: 2.849 (2014) 	2016–Present
	Elsevier's <i>Chaos, Solitons & Fractals</i>, The interdisciplinary journal of Nonlinear Science, and Nonequilibrium and Complex Phenomena <ul style="list-style-type: none"> - Impact factor: 1.611 (2014) 	2016–Present
	Springer's <i>Journal of Scientific Computing</i> <ul style="list-style-type: none"> - Impact factor: 1.946 (2015) 	2016–Present
SELECTED PROJECTS	Self-balancing Robot - MIP <ul style="list-style-type: none"> - Individual capstone controls project - Digital implementation of continuous time modeling and control design 	
	Fly Righting Response Experimentation Device - Fly2R <ul style="list-style-type: none"> - Team capstone mechanical design project - Developed for UCSD's Pharmacology Department for use with experimentation - Received Departmental Best Project Award 	
	Portable Solar Powered Sensing Station - get(Sol) <ul style="list-style-type: none"> - Individual research-based design project - Self-sustaining/monitoring sensing station, internal web/data management - 6+ month uninterrupted runtime (unplugged, zero maintenance) 	
AWARDS AND DISTINCTIONS	San Diego Fellowship <ul style="list-style-type: none"> - 4-Year scholarship: tuition and stipend 	March 2014
	MAE Departmental Best Project Award: Fly2R	Spring 2014
	UCSD Alumni Leadership Scholar	July 2012
	Coca-Cola Scholar	March 2010
	MiraCosta College Medal of Honor Scholar	Apr 2010
	MiraCosta College Foundation Scholar	June 2010
TECHNICAL SKILLSETS	Programming <ul style="list-style-type: none"> - Syntax: Python, Matlab, Mathematica, C/C++, Julia, Git/SVN, L^AT_EX, Bibtex - Environment: *nix, Windows 	

Design and Simulation

- Eagle PCB, Inventor and Autocad, SolidWorks, PTC Creo (Pro/E), Siemens Femap, Ansys (FEA), SolidWorks COSMOS (FEA)

Circuits and Electronics

- PCB (SMD) prototyping and design, SMD hand-soldering
- Signal conditioning, sensing, actuation
- μ C: BeagleBone, Arduino, Raspberry Pi

Rapid Prototyping

- Machining, lasercamm

Graphical Design

- Adobe Photoshop and Illustrator

EMPLOYMENT**Controls Engineer (intern)**

June 2016–December 2016

Cymer / ASML

- Individually undertaken project to research, design, and implement automation upgrades to existing experimental apparatus.
- Applied technical skillsets based on primary project deliverables:
 - mechanical design (5%)
 - software/hardware high and low level interfacing (15%)
 - hydrodynamics and hydrodynamic instabilities (15%)
 - control theory (25%)
 - machine vision (40%)