

CITIZENSHIP	U.S. Citizen	
EDUCATION	University of California San Diego <i>Ph.D. Mechanical Engineering</i> - President's Dissertation Year Fellowship (2018–2019) - San Diego Fellowship (2014–2018) - Interests and expertise: <ul style="list-style-type: none"> • applied math, control and stability, identification and estimation, nonlinear/nonconvex optimization, fluid mechanical systems, condensed matter systems, radiative mechanics • predictive analytics with machine learning models / feature engineering • generalized variable order models for anomalous spectroscopic dispersion • statistical models for emergent nonlocal dynamics in many-body systems 	March 2016–present
	University of California San Diego <i>M.S. Mechanical Engineering</i> - San Diego Fellowship (2014–2018) - Courses (GPA: 3.88): <ul style="list-style-type: none"> • MAE 280 A/B: Linear Systems and Control • MAE 288 A: Optimal Control • MAE 283 A: Open-loop System Identification • MAE 283 B: Closed-loop System Identification and Approximate Control • 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 	2016
	University of California San Diego <i>B.S. Mechanical Engineering</i> - Provost Honors, Warren College Honor Society - Selected Courses: <ul style="list-style-type: none"> • MAE 143 A/B/C: Signals, CT/DT Control Systems • MAE 144: Embedded Control and Robotics • MATH 120 A: Complex Analysis 	2014
	MiraCosta Community College <i>A.A. Pre-Engineering</i> - Medal of Honor Scholarship - President's List, President's Permanent Honor Roll - President, Phi Theta Kappa Honor Society - All California Academic Team	2011

EMPLOYMENT	Controls Engineer (intern) <i>Cymer / ASML</i> June 2016–December 2016 <ul style="list-style-type: none"> - Individually undertaken project to research, design, and implement automation upgrades to existing experimental apparatus. - Machine vision driven feedback loop based on observation of a modulated hydrodynamic instability and multi-stage actuation of an imaging assembly. - Applied technical skillsets based on project deliverables: <ul style="list-style-type: none"> - mechanical design (5%) - software/hardware high and low level interfacing (15%) - hydrodynamics and hydrodynamic instabilities (15%) - control theory (25%) - machine vision (40%)
PUBLICATIONS	<p>Orosco, J. and Coimbra, C. F. M.: Anomalous carrier transport model for broadband infrared absorption in metals. <i>Physical Review B</i> (in press)</p> <p>Orosco, J. and Coimbra, C. F. M.: Variable order modeling of nonlocal emergence in many-body systems: Application to radiative dispersion. <i>Physical Review E</i> (2018) Link - PDF</p> <p>Orosco, J. and Coimbra, C. F. M.: On a causal dispersion model for the optical properties of metals. <i>Applied Optics</i> (2018) Link - PDF</p> <p>Orosco, J. and Coimbra, C. F. M.: Optical response of thin amorphous films to infrared radiation. <i>Physical Review B</i> (2018) Link - PDF</p> <p>Orosco, J. and Coimbra, C. F. M.: On the control and stability of variable-order mechanical systems. <i>Nonlinear Dynamics</i> (2016) Link - PDF</p>
MANUSCRIPT REVIEW	<p>Elsevier's Energy, <i>The International Journal</i> 2014–Present</p> <p>Springer's Nonlinear Dynamics, <i>An International Journal of Nonlinear Dynamics and Chaos in Engineering Systems</i> 2016–Present</p> <p>Elsevier's Chaos, Solitons & Fractals, <i>An interdisciplinary journal of nonlinear science</i> 2016–Present</p> <p>Springer's Journal of Scientific Computing 2016–Present</p> <p>AIP's Physics of Fluids 2017–Present</p> <p>Elsevier's Solar Energy, <i>The Official Journal of the International Solar Energy Society</i> 2018–Present</p> <p>The Optical Society's Applied Optics 2018–Present</p> <p>Elsevier's International Journal of Non-Linear Mechanics 2018–Present</p>
PROFESSIONAL MEMBERSHIPS	<p>The American Institute of Aeronautics and Astronautics (AIAA) 2018–Present</p> <p>American Society of Mechanical Engineers (ASME) 2017–Present</p> <p>Institute of Electrical and Electronics Engineers (IEEE) 2017–Present</p>

	The Optical Society (OSA)	2018–Present
	Society of Industrial and Applied Mathematics (SIAM)	2017–Present
SELECTED PROJECTS	Real Time Solar Power Forecasting	
	<ul style="list-style-type: none"> - In use at large-scale (200+ MW commercial grid supplier) solar power plant - State of the art machine learning models for power output forecasts - Utilizes novel memory-based feature sets generated with cutting-edge mathematics 	
	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	President's Dissertation Year Fellowship	2018–2019
	<ul style="list-style-type: none"> - 1-Year scholarship: tuition and stipend 	
	San Diego Fellowship	2014–2018
	<ul style="list-style-type: none"> - 4-Year scholarship: tuition and stipend 	
	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 - Frameworks: XGBoost, SKLearn, Pandas, CVXPY 	
	Data Science	
	<ul style="list-style-type: none"> - Data quality assessment - Feature engineering - Regressive models - Time series analysis 	
	Design and Simulation	
	<ul style="list-style-type: none"> - Eagle PCB, Inventor and Autocad, SolidWorks 	
	Circuits and Electronics	
	<ul style="list-style-type: none"> - PCB (SMD) prototyping and design, SMD hand-soldering - Signal conditioning, sensing, actuation - μC: BeagleBone, Arduino, Raspberry Pi 	

Rapid Prototyping

- Machining, lasercamm

Graphical Design

- Adobe Photoshop and Illustrator