

education

2023*	Ph.D. Physics (*Candidate)	University of Washington, Seattle, WA
	Neural Networks for Sensor Fusion and Machine-Learning for Aero-optical Control	
2021	M.S. Applied Mathematics	University of Washington, Seattle, WA
	Emphasis on practical and theoretical machine-learning	
2018	M.S. Physics	San Francisco State University, San Francisco, CA
	Disordered Photonic Bandgap Materials for Waveguides and Resonant Cavities	
2009	B.S. Supply Chain Management	University of Rhode Island, Kingston, RI
2009	B.A. Psychology	University of Rhode Island, Kingston, RI

employment

2018-Now	Univeristy of Washington	Seattle, WA
	Research Associate, Department of Applied Mathematics, Kutz Dynamics Lab & AI Institute	
	• Machine learning for aero-optical and photonic control	
	Teaching Assistant, Department of Physics	
	• Prepared, taught, and graded undergraduate physics recitations and labs	
2015-2017	SFSU Department of Physics & Astronomy	San Francisco, CA
	Research Assistant, Weining Man Research Group	
	• Constructed experiments for photonic bandgap meta-materials	
	• Simulated waveguides and resonators via high performance computing	
	Teaching Assistant	
	• Graded and supported labs on electronics	
2014-2017	Elite Educational Institute	San Francisco, CA
	Mathematics & Physics Instructor	
2013-2015	Edge U Tutoring	San Francisco, CA
	Owner & Private Tutor - SAT, ACT, AP, and high school prep	
2011-2014	Revolution Prep	San Francisco, CA
	SAT & ACT Instructor	

skills

aerodynamics, C, condensed matter physics, CSS, **deep learning**, differential equations, event-planning, finance, fluid mechanics, **git**, graphic design, **high performance computing (HPC)**, HTML, javascript, Julia, ~~LaTeX~~, **Linux**, logistics, **machine learning**, Mathematica, mathematics, MATLAB, networking (IT), optics, **photonics**, physics, programming, **public-speaking**, **Python**, **PyTorch**, quantum computing, **Shell**, SQL, system administration, **teaching and curriculum design**, typescript, web development

publications

[Wavefront Sensor Fusion via Shallow Decoder Neural Networks for Aero-optical Predictive Control](#)

S Sahba, CC Wilcox, A. McDaniel, BD Shaffer, SL Brunton, & JN Kutz
2022, SPIE Interferometry XXI Proceedings

[Dynamic Mode Decomposition for Aero-optic Wavefront Characterization](#)

S Sahba, D Sashidar, CC Wilcox, A McDaniel, SL Brunton, & JN Kutz
2022, SPIE Optical Engineering

[Local Self-Uniformity in Photonic Networks](#)

SR Sellers, W Man, **S Sahba**, & M Florescu
2018, Nature Communications

presentations

2022	SPIE Optical Engineering, <i>Wavefront Sensor Fusion via Neural Networks for Aero-optic Predictive Control</i>
2022	Optica Siegman School Symposium, <i>On Dynamic Mode Decomposition and Aero-optical Beam Control</i>
2020	Air Force Research Lab, <i>Dynamic Mode Decomposition for Aero-Optical Wavefront Reconstruction</i>
2020	Town Hall Seattle, Engage Science, <i>Taming Lasers in the Wild Sky</i>
2016	ARCS NCC Symposium, Poster, <i>Hyperuniform Disordered Photonic Structures</i>
2015	ARCS NCC SFSU Review, <i>Photonic Crystals and Modern Applications</i>

honors

2022	Optica Siegman School Scholar
2021	AFRL Scholars Outstanding Award Recipient
2020	Optica Siegman School Scholar
2020	Air Force Research Lab (AFRL) Directed Energy Scholar
2019	UW Graduate Teaching Award
2017	UW Physics Department Fellowship
2017	SFSU Distinguished Achievement Award
2016	ARCS Northern California Scholar
2016	Blue Waters Petascale Institute Scholar
2016	SFSU College of Science & Engineering, Student Project Showcase 1st Place Winner
2015	ARCS Northern California Scholar
2005	American Invitational Mathematics Examination Scholar

achievements

2019-2022	Software Carpentry Instructor Led tutorials in Linux, Python, R, and Git in live-coding workshops, bringing data tools to professional researchers.	Seattle, WA
2018-2020	Career Development Organization for Physicists at UW, Conference President Organized two industry-meets-academia career conferences, in 2018 and 2019, handling fundraising, logistics, marketing, and programming. Raised a surplus to fund future networking events, and succeeded in getting two PhDs hired.	Seattle, WA
2013	UC Berkeley Certification in Information System Administration Six courses in UNIX system administration and network IT. Certificate received with 4.0 distinction.	Berkeley, CA

engagement

2019-2020	UW Physics Slam Host Co-organized UW's first physics slam, bringing cutting-edge research to the public and fundraising for diversity in physics.
2018-2019	UW DRiP (Directed Reading in Physics) Program Organizer and Mentor Constructed a program to coach UW physics undergrads in research, fostering community and developing scientific literacy.
2017-2020	Physics Graduate Student Committee Event Coordinator Hosted departmental events for the UW Physics Department.
2018-2019	UW Physics Peer Mentor Introduced new PhD's to UW, providing guidance.
2016-2017	Optical Society SFSU Student Chapter President Arranged the traveling lecturer series of talks, inviting faculty from abroad to visit SFSU.

teaching experience

Department of Physics, University of Washington

2017-2021 *Graduate Teaching Assistant*

PHYS115 General Physics Mechanics
PHYS116 General Physics Electromagnetism
PHYS117 General Physics Mechanics Lab
PHYS118 General Physics Electromagnetism Lab
PHYS121 Physics w/ Calc. Mechanics Tutorial
PHYS122 Physics w/ Calc. Electromagnetism Tutorial
PHYS123 Physics w/ Calc. Waves & Optics Tutorial
PHYS121z Physics w/ Calc. Mechanics Lab
PHYS224 Thermodynamics
PHYS324 Quantum Mechanics
PHYS325 Quantum Mechanics
PHYS423 Solid State Physics
PHYS427 Quantum Computing & Information
PHYS576 Modern Data Analysis Techniques

Department of Physics & Astronomy, San Francisco State University

2015-2016 *Graduate Teaching Assistant*

PHYS360 Electricity and Magnetism
PHYS457 Principles of Electronics

Elite Educational Institute

2014-2017 *Mathematics & Physics Instructor*

tutoring: SAT, SAT II, Precalculus, AP Calculus, AP Physics.
courses: Geometry, Precalculus, SAT Prep

Edge U Tutoring (link to archived site)

2013-2015 *Owner & Private Tutor*

tutoring: SAT, ACT, AP Calculus, AP Physics, AP Biology

Revolution Prep

2010-2013 *SAT Instructor & Private Tutor*

courses: SAT Prep, ACT Prep