ARIANA MENDIBLE

University of Washington ⋄ Mechanical Engineering Bldg 120, Box # 352600 ⋄ Seattle WA 98195
(+1) 408 688 7245 ⋄ mendible@uw.edu

Research Interests

Dynamical systems, modal decompositions, reduced-order modeling, transport-dominated phenomenon, traveling wave physics, machine learnings

EDUCATION

University of Washington June 2021 (expected)
PhD, Mechanical Engineering *GPA: 3.91*

- Advisors Steven Brunton (Mechanical Engineering) and J. Nathan Kutz (Applied Mathematics)
- Research in data-driven dimensionality reduction methods for traveling waves using optimization
- Courses in scientific computing, partial differential equations, optimization, system dynamics, software development, and data visualization

Seattle University June 2016
BS, Mechanical Engineering, Minor in Mathematics *Seattle, WA*

- Conducted research in numerical solutions to the nonlinear water wave equations with dissipation, advised by John Carter (Mathematics), supported by Clare Boothe Luce Foundation Undergraduate Research Award

RELEVANT EXPERIENCE

Clear Motion (previously Levant Power) June - Aug 2016
Controls Engineering Intern *Woburn, MA*

- Worked with the Controls Team to develop Simulink controllers for novel actively-controlled vehicle damper system
- Developed MATLAB codes to streamline experimental test setup and daily tasks for Controls Team

Senior Design Project Sept 2015 - June 2016
Ingersoll Rand & Seattle University *Seattle, WA*

- Developed a working prototype digital flow hour meter for high pressure air compressor applications
- USPTO Patent application filed through Ingersoll Rand (US20190051059A1 (Pending))

National Renewable Energy Laboratory June - Aug 2015
Science Undergraduate Laboratory Internship *Boulder, CO*

- Developed two wave prediction methods in MATLAB for improving wave energy converter controls in collaboration with the Water Power Team
- Communicated results on the validity of the two models in technical paper and poster at SULI conference

Oregon State University June - Aug 2014
OH Hinsdale Wave Research Laboratory REU *Corvallis, OR*

- Worked in the Tsunami Wave Basin to study the interaction between marine infrastructure and tsunamis
- Applied flow visualization toolboxes in MATLAB to quantify tsunami-induced vortices
- Communicated results in a technical paper and poster presentation at the NEES REU Symposium

PUBLICATIONS

- **A Mendible**, A Aravkin, W Lowrie, JN Kutz and SL Brunton. *Robust flow field estimation from limited measurements via sparse representation* (2019). In preparation.
- NB Erichson, **A Mendible**, S Wihlborn, JN Kutz *Randomized nonnegative matrix factorization* (2018). Pattern Recognition Letters, 104, 1-7.

MEETINGS AND TALKS

- **A Mendible**, A Aravkin, W Lowrie, JN Kutz and SL Brunton. *The Space-time Problem with Model Reduction for Traveling Waves.* SIAM Computer Science and Engineering, 2019.
- NB Erichson, **A Mendible**, S Wihlborn, JN Kutz. *Randomized Nonnegative Matrix Factorizations.* SIAM Applied Linear Algebra, 2018.
- **A Mendible**. *Numerical Solutions to Nonlinear Water Wave Equations.* Seattle University Undergraduate Research Association Conference, 2015.

PATENTS

A Mendible, S Heard, T Tran, A Hardesty. *Air Flow Hour Meter.* US20190051059A1 (Pending)

AWARDS

Brian and Mary Fabien Endowed Fellowship 2017

Wei Li and Dongmei Chen Endowed Fellowship 2017

Steve and Lynn Pratt Fellowship 2017

Brian and Mary Fabien Endowed Fellowship 2016

Graduate Diversity Fellowship 2016
University of Washington Graduate Opportunities and Minority Achievement Program

Undergraduate Research Award 2014
Clare Boothe Luce Foundation

TEACHING & OUTREACH

Engineering Discovery Days 2019
College of Engineering, University of Washington

· Built a chaotic water wheel with live data acquisition to educate 4,500 grade-school students

Teaching Assistant Fall 2017
University of Washington *Mechanics of Materials*

Lead Learning Assistant 2013-2016
Seattle University *Calculus II & Differential Equations*

OTHER SKILLS

Software & Programming	MATLAB & Simulink, Python, C++, COMSOL, Solidworks
Prototyping	Arduino, sensors, machine shop fabrication
Data Science	Unsupervised learning, regression, clustering, classification, optimization
Languages	Intermediate-level formal written and spoken Spanish