# ARIANA MENDIBLE

University of Washington  $\diamond$  Mechanical Engineering Bldg 120, Box # 352600  $\diamond$  Seattle WA 98195 (+1) 408 688 7245  $\diamond$  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 University of Washington Graduate Opportunities and Minority Achievement Program	2016
Undergraduate Research Award Clare Boothe Luce Foundation	2014

#### **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