

# STEVEN L. BRUNTON

James B. Morrison Professor

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## RESEARCH INTERESTS

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- Machine learning and data science for modeling and control of complex systems
- Fluid dynamics, flow control, transport phenomena, and turbulence modeling
- Model reduction, sparse sensing, and feedback control of high-dimensional dynamical systems
- Adaptive and robust control techniques for energy optimization and conversion

## AFFILIATIONS & APPOINTMENTS

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**University of Washington (UW)** **2012–present**

<i>2021 – present</i>	Professor of Mechanical Engineering
<i>2022 – present</i>	Adjunct Professor of Aeronautics & Astronautics
<i>2019 – present</i>	Adjunct Professor of Computer Science
<i>2018 – present</i>	Adjunct Professor of Applied Mathematics
<i>2018 – present</i>	Associate Professor of Mechanical Engineering
<i>2014 – present</i>	Data Science Fellow, eScience Institute
<i>2014 – 2018</i>	Assistant Professor of Mechanical Engineering
<i>2012 – 2014</i>	Acting Assistant Professor of Applied Mathematics

<b>Institute for Pure &amp; Applied Mathematics (IPAM)</b>	<b>Sept.–Dec. 2019</b>
<b>California Institute of Technology (sabbatical)</b>	<b>Aug. 2021–June 2022</b>

## EDUCATION

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<b>Princeton University</b>	<b>Princeton, NJ 08544</b>
Ph.D. in Mechanical and Aerospace Engineering, 2012	Advisor: Clarence W. Rowley
Thesis: Unsteady aerodynamic models for agile flight at low Reynolds numbers.	

<b>California Institute of Technology</b>	<b>Pasadena, CA 91125</b>
B.S. Mathematics, Minor Control and Dynamical Systems, 2006	Advisor: Jerrold E. Marsden
Thesis: Rank-1 saddle transport in three or more degrees of freedom scattering reactions.	

## AWARDS & HONORS

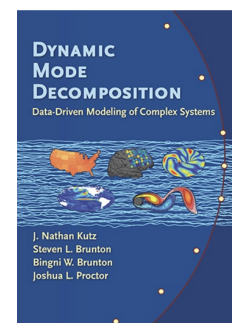
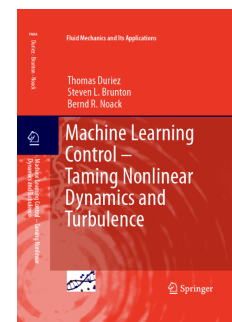
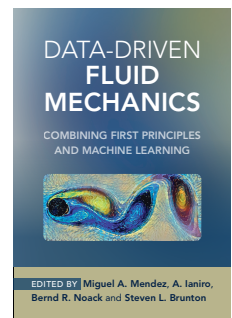
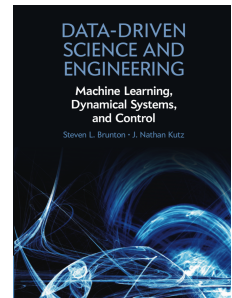
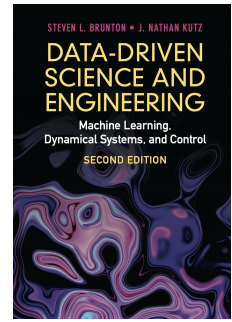
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- Moore Distinguished Scholar, Sabbatical at Caltech [2021-2022]
- Presidential Early Career Award for Scientists and Engineers (PECASE) [2019]
- Simons Participant, Institute for Pure and Applied Mathematics (IPAM) UCLA [2019]
- SIAM Computational Science and Engineering Early Career Prize [2019]
- UW College of Engineering Junior Faculty Award [2018]
- Air Force Young Investigator Program Award [2017]
- Army Young Investigator Program Award [2017]
- UW College of Engineering Faculty Teaching Award [2017]
- Data Science Fellow, eScience Institute [2014]
- Athena-Feron Award for Mathematical Excellence [2007]
- Princeton MAE Second Year Graduate Fellowship [2007]
- Gordon Wu Graduate Fellowship [2006-2010]

## BOOKS

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5. **S. L. Brunton**, and J. N. Kutz  
*Data Driven Science and Engineering:  
Machine Learning, Dynamical Systems, and Control, 2nd Edition*  
Cambridge 2022. databookuw.com
4. **S. L. Brunton**, and J. N. Kutz  
*Data Driven Science and Engineering:  
Machine Learning, Dynamical Systems, and Control*  
Cambridge 2019. databookuw.com
3. M. A. Mendez, A. Ianiro, B. R. Noack, and **S. L. Brunton**  
*Data Driven Fluid Mechanics:  
Combining First Principles and Machine Learning*  
Cambridge Jan. 2023.
2. T. Duriez, **S. L. Brunton**, and B. R. Noack  
*Machine Learning Control –  
Taming Nonlinear Dynamics and Turbulence*  
Springer 2016.
1. J. N. Kutz, **S. L. Brunton**, B. W. Brunton, and J. L. Proctor  
*Dynamic Mode Decomposition: Data-Driven Modeling of Complex  
Systems*  
SIAM 2016.



## JOURNAL PUBLICATIONS

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23000 Google scholar citations; h-index 59; i10-index 158

162. **S. L. Brunton** and M. J. Colbrook  
Resilient Data-Driven Dynamical Systems with Koopman: An Infinite-Dimensional Numerical Analysis Perspective.  
*SIAM News*, 2023.
161. K. Kaheman, J. Bramburger, J. N. Kutz, and **S. L. Brunton**  
Saddle Transport and Chaos in the Double Pendulum.  
*To appear in Nonlinear Dynamics*, 2023.
160. P. J. Baddoo, B. Herrmann, B. J. McKeon, J. N. Kutz, **S. L. Brunton**  
Physics-informed dynamic mode decomposition (piDMD).  
*To appear in Proceedings of the Royal Society A*, 2023.
159. M. Hickner, U. Fasel, A. G. Nair, B. W. Brunton, **S. L. Brunton**  
Data-driven aeroelastic modeling for control.  
*AIAA Journal*, **61**(2):780–792, 2023.
158. S. Ouala, R. Fablet, **S. L. Brunton**, B. Chapron, A. Pascual, F. Collard, L. Gaultier  
Bounded nonlinear forecasts of partially observed geophysical systems with physics-constrained deep learning.  
*Physica D*, **446**(133630), 2023.
157. S. Pan, **S. L. Brunton**, and J. N. Kutz  
Neural Implicit Flow: a mesh-agnostic dimension reduction paradigm of spatio-temporal data.  
*Journal of Machine Learning Research*, **24**(41):1–60, 2023.
156. Y. Liu, C. Ponce, **S. L. Brunton**, and , J. N. Kutz  
A multiresolution convolutional autoencoder for multiscale spatial-temporal data.  
*Journal of Computational Physics*, **474**:111801, 2023.
155. J. Bakarji, J. Callaham, **S. L. Brunton**, J. N. Kutz  
Learning dimensionless groups and minimally parameterized equations from data.  
*Nature Computational Science*, **2**:834–844, 2022.
154. U. Fasel, N. Fonzi, A. Iannelli, **S. L. Brunton**  
FlexWing-ROM: A matlab framework for data-driven reduced-order modeling of flexible wings.  
*Journal of Open Source Software*, **7**(80):4211, 2022.
153. A. Goldschmidt, J. L. DuBois, **S. L. Brunton**, J. N. Kutz  
Model predictive control for robust quantum state preparation.  
*Quantum*, **6**:837, 2022.
152. A. A. Kaptanoglu, A. Jalalvand, J. Abbate, M. E. Austin, G. Verdoolaege, J. Schneider, C. J. Hansen, **S. L. Brunton**, W. W. Heidbrink, and E. Kolemen  
Exploring data-driven models for spatiotemporally local classification of Alfvén eigenmodes.  
*Nuclear Fusion*, **62**(10):106014, 2022.
151. F. Renda, G. Mengaldo, **S. L. Brunton**, M. Bacher, M. Calisti, G. S. Chirikjian, and C. Laschi  
A concise guide to modeling the physics of embodied intelligence in soft robotics.  
*Nature Reviews Physics*, **4**:595–610, 2022.
150. R. Vinuesa and **S. L. Brunton**  
The Potential of Machine Learning to Enhance Computational Fluid Dynamics.  
*Nature Computational Science*, **2**:358–366, 2022.

149. Y. Liu, J. N. Kutz, and **S. L. Brunton**  
Hierarchical deep learning of multiscale differential equation time-steppers.  
*Philosophical Transactions A*, **380**(2229), 2022.
148. E. Hansen, **S. L. Brunton**, and Z. Song  
Swarm Modeling with Dynamic Mode Decomposition.  
*IEEE Access*, **10**:59508–59521, 2022.
147. J. L. Callaham, G. Rigas, J.-Ch. Loiseau, and **S. L. Brunton**  
An empirical mean-field model of symmetry-breaking in a turbulent wake.  
*Science Advances*, **8**:eabm4786, 2022.
146. U. Fasel, J. N. Kutz, B. W. Brunton, **S. L. Brunton**  
Ensemble-SINDy: Robust model discovery in the high-noise and low-data limit for active learning and control.  
*Proceedings of the Royal Society A*, **478**(2260):20210904, 2022.
145. **S. L. Brunton**, M. Budišić, E. Kaiser, and J. N. Kutz  
Modern Koopman Theory for Dynamical Systems.  
*SIAM Review*, **64**(2):229–340, 2022.
144. P. J. Baddoo, H. Herrmann, B. J. McKeon, and **S. L. Brunton**  
Kernel Learning for Robust Dynamic Mode Decomposition: Linear and Nonlinear Disambiguation Optimization (LANDO).  
*Proceedings of the Royal Society A*, **478**(2260):20210830, 2022.
143. K. Manohar, J. N. Kutz, and **S. L. Brunton**.  
Optimal sensor and actuator placement using balanced model reduction.  
*IEEE Transactions on Automatic Control*, **67**(4):2108–2115, 2022.
142. S. N. Rodriguez, A. P. Iliopoulos, K. T. Carlberg, **S. L. Brunton**, J. C. Steuben, and J. G. Michopoulos  
Projection-tree reduced order modeling for fast  $N$ -body computations.  
*Journal of Computational Physics*, **459**:111141, 2022.
141. J. L. Callaham, **S. L. Brunton**, and J.-Ch. Loiseau  
On the role of nonlinear correlations in reduced-order modeling.  
*Journal of Fluid Mechanics*, **938**:A1, 2022.
140. S. T. M. Dawson and **S. L. Brunton**  
Improved approximations to the Wagner function using sparse identification of nonlinear dynamics.  
*AIAA Journal*, **60**(3): 1691–1707, 2022.
139. K. Kaheman, **S. L. Brunton**, and J. N. Kutz  
Automatic Differentiation to Simultaneously Identify Nonlinear Dynamics and Extract Noise Probability Distributions from Data.  
*Machine Learning Science and Technology*, **3**:015031, 2022.
138. J. N. Kutz and **S. L. Brunton**  
Parsimony as the Ultimate Regularizer for Physics-Informed Machine Learning.  
*Nonlinear Dynamics*, **107**:1801–1817, 2022.
137. B. Herrmann, **S. L. Brunton**, J. E. Pohl, and R. Semaan  
Gust mitigation through closed-loop control. Part II: feedforward and feedback control.  
*Physical Review Fluids*, **7**:024706, 2022.
136. J. E. Pohl, R. Radespiel, B. Herrmann, **S. L. Brunton**, and R. Semaan  
Gust mitigation through closed-loop control. Part I: Trailing-edge flap response.

*Physical Review Fluids*, **7**:024705, 2022.

- 135.** K. Krishna, Z. Song, and **S. L. Brunton**  
Finite-horizon, energy-optimal trajectories in unsteady flows.  
*Proceedings of the Royal Society A*, **478**(2258), 2022.
- 134.** B. Strom, B. Polagye, and **S. L. Brunton**  
Near-wake dynamics of a vertical-axis turbine.  
*Journal of Fluid Mechanics*, **935**(A6), 2022.
- 133.** A. A. Kaptanoglu, B. M. de Silva, U. Fasel, K. Kaheman, A. J. Goldschmidt, J. L. Callahan, C. B. Delahunt, Z. G. Nicolaou, K. Champion, J.-Ch. Loiseau, J. N. Kutz, **S. L. Brunton**  
PySINDy: A comprehensive Python package for robust sparse system identification.  
*Journal of Open Source Software*, **7**(69):3994, 2022.
- 132.** S. Sahba, D. Sashidhar, C. C. Wilcox, A. McDaniel, **S. L. Brunton**, and J. N. Kutz  
Dynamic mode decomposition for Aero-Optic Wavefront Characterization.  
*Optical Engineering*, **61**(1):013105, 2022.
- 131.** D. Dylewsky, E. Kaiser, **S. L. Brunton**, and J. N. Kutz  
Principal Component Trajectories (PCT): Nonlinear dynamics as a superposition of time-delayed periodic orbits.  
*Physical Review E*, **105**(1):015312, 2022.
- 130.** A. Mendible, W. Lowrie, **S. L. Brunton**, and J. N. Kutz  
Data-driven Modeling of Two-Dimensional Detonation Wave Fronts.  
*Wave Motion*, **109**:102879, 2022.
- 129.** **S. L. Brunton**  
Applying Machine Learning to Study Fluid Mechanics.  
*Acta Mechanica Sinica*, **37**(12):1720–1728, 2022.
- 128.** J. N. Kutz, **S. L. Brunton**, B. W. Brunton, J. L. Proctor  
Data-driven Modeling of Dynamic Systems.  
*SIAM News*, **54**(09), 2021.
- 127.** M. Hoffmann, M. Scherer, T. Hempel, A. Mardt, B. de Silva, B. E. Husic, S. Klus, H. Wu, Nathan Kutz, **S. L. Brunton**, F. Noé  
Deeptime: a Python library for machine learning dynamical models from time series data.  
*Machine Learning Science and Technology*, **3**(1):015009, 2021.
- 126.** Z. Wu, **S. L. Brunton**, and S. Revzen  
Challenges in dynamic mode decomposition.  
*Royal Society Interface*, **18**(185):20210686, 2021.
- 125.** A. Jalalvand, A. A. Kaptanoglu, A. V. Garcia, A. O. Nelson, J. Abbate, M. E. Austin, G. Verdoolaege, **S. L. Brunton**, W. W. Heidbrink, and E. Kolemen  
Alfvén eigenmode classification based on ECE diagnostics at DIII-D using deep recurrent neural networks. *Nuclear Fusion*, **62**(2):026007, 2021.
- 124.** C. R. Gin, D. E. Shea, **S. L. Brunton**, and J. N. Kutz  
DeepGreen: Deep learning of Green’s functions for nonlinear boundary value problems.  
*Scientific Reports*, **11**:21614, 2021.
- 123.** S. M. Hirsch, S. M. Ichinaga, **S. L. Brunton**, J. N. Kutz, and B. W. Brunton  
Structured Time-Delay Models for Dynamical Systems with Connections to Frenet-Serret Frame.  
*Proceedings of the Royal Society A*, **477**(2254), 2021.
- 122.** B. M. de Silva, J. Callahan, J. Jonker, NN. Goebel, J. Klemisch, D. McDonald, N. Hicks, J. N.

- Kutz, **S. L. Brunton**, and A. Y. Aravkin  
Hybrid learning approach to sensor fault detection with flight test data.  
*AIAA Journal*, **59**(9):3490-3503, 2021.
121. A. G. Nair, K. Taira, B. W. Brunton and **S. L. Brunton**  
Phase-based control of periodic flows.  
*Journal of Fluid Mechanics*, **927**(A30), 2021.
120. C. Gong, **S. L. Brunton**, B. T. Schowengerdt, E. J. Seibel  
Intensity-Mosaic: Automatic Panorama Mosaicking of Disordered Images with Insufficient Features. *Journal of Medical Imaging*, **8**(5):054002, 2021.
119. J. J. Bramburger, **S. L. Brunton**, and J. N. Kutz  
Deep learning of conjugate mappings.  
*Physica D*, **427**:133008, 2021.
118. A. A. Kaptanoglu, J. L. Callahan, C. J. Hansen, A. Aravkin, and **S. L. Brunton**  
Promoting global stability in data-driven models of quadratic nonlinear dynamics.  
*Physical Review Fluids*, **6**:094401, 2021. (Editors' Suggestion)
117. J. Snyder, J. Callahan, **S. L. Brunton**, and J. N. Kutz  
Data-driven stochastic modeling of coarse-grained dynamics with finite-size effects using Langevin regression.  
*Physica D*, **427**:133004, 2021.
116. N. J. Linden, D. R. Tabuena, N. A. Steinmetz, W. J. Moody, **S. L. Brunton**, and B. W. Brunton  
Go with the FLOW: Visualizing spatiotemporal dynamics in optical widefield calcium imaging.  
*Journal of the Royal Society Interface*, **18**(181), 2021.
115. Y. Guan, **S. L. Brunton**, and I. Novosselov  
Sparse nonlinear models of chaotic electroconvection.  
*Royal Society Open Science*, **8**(8):202367, 2021.
114. **S. L. Brunton**, J. N. Kutz, K. Manohar, A. Y. Aravkin, K. Morgansen, J. Klemisch, N. Goebel, J. Buttrick, J. Poskin, A. Blom-Schieber, T. Hogan, and D. McDonald  
Data-driven aerospace engineering: Reframing the industry with machine learning.  
*AIAA Journal*, **59**(8):2820–2847, 2021.
113. A. A. Kaptanoglu, K. D. Morgan, C. J. Hansen, and **S. L. Brunton**  
Physics-constrained, low-dimensional models for MHD: First-principles and data-driven approaches.  
*Physical Review E*, **104**(1):015206, 2021.
112. D. E. Shea, **S. L. Brunton**, and J. N. Kutz  
SINDy-BVP: Sparse Identification of Nonlinear Dynamics for Boundary Value Problems.  
*Physical Review Research*, **3**(2):023255-1–023255-14, 2021.
111. D. E. Shea, R. Giridharagopal, D. S. Ginger, **S. L. Brunton**, and J. N. Kutz  
Extraction of instantaneous frequencies and amplitudes in nonstationary time-series data.  
*IEEE Access*, **9**:82453–83466, 2021.
110. J. L. Callahan, J.-Ch. Loiseau, G. Rigas, and **S. L. Brunton**  
Nonlinear stochastic modeling with Langevin regression.  
*Proceedings of the Royal Society A*, **477**(2250), 2021.
109. E. Kaiser, J. N. Kutz, and **S. L. Brunton**  
Data-driven discovery of Koopman eigenfunctions for control.  
*Machine Learning Science and Technology*, **2**:035023, 2021.
108. A. Mendible, J. Koch, H. Lange, **S. L. Brunton**, and J. N. Kutz

- Data-driven modeling of rotating detonation waves.  
*Physical Review Fluids*, **6**:050507, 2021.
107. B. Herrmann, P. J. Baddoo, R. Semaan, **S. L. Brunton**, and B. J. McKeon  
Data-driven resolvent analysis.  
*Journal of Fluid Mechanics*, **918**(A10), 2021.
  106. A. Goldschmidt, E. Kaiser, J. Dubois, **S. L. Brunton**, and J. N. Kutz  
Bilinear dynamic mode decomposition for quantum control.  
*New Journal of Physics*, **23**(3):033035, 2021.
  105. J. J. Bramburger, J. N. Kutz, and **S. L. Brunton**  
Data-Driven Stabilization of Periodic Orbits.  
*IEEE Access*, **8**:43504–43521, 2021.
  104. B. M. de Silva, K. Manohar, E. Clark, B. W. Brunton, **S. L. Brunton**, J. N. Kutz  
PySensors: A Python Package for Sparse Sensor Placement.  
*Journal of Open Source Software*, **6**(58):2828, 2021.
  103. M. V. Zhelyeznyakov, **S. L. Brunton**, and A. Majumdar  
Deep learning to accelerate Maxwell’s equations for inverse design of dielectric metasurfaces.  
*ACS Photonics*, **8**(2):481–488, 2021.
  102. H. Lange, **S. L. Brunton**, and J. N. Kutz  
From Fourier to Koopman: Spectral Methods for Long-term Time Series Prediction.  
*Journal of Machine Learning Research*, **22**(41):1–38, 2021.
  101. E. Clark, A. Vincent, J. N. Kutz, and **S. L. Brunton**  
Bracketing brackets with bras and kets.  
*Journal of Manufacturing Systems*, **58**(A):384–391, 2021.
  100. J. L. Callahan, J. N. Kutz, B. W. Brunton and **S. L. Brunton**  
Learning dominant physical processes with data-driven balance models.  
*Nature Communications*, **12**(1):1–10, 2021.
  99. I. Scherl, B. Strom, **S. L. Brunton**, and B. L. Polagye  
Geometric and control optimization of a two cross-flow turbine array.  
*Journal of Renewable and Sustainable Energy*, **12**:064501, 2020.
  98. E. Clark, **S. L. Brunton**, and J. N. Kutz  
Multi-fidelity sensor selection: Greedy algorithms to place cheap and expensive sensors with cost constraints.  
*IEEE Sensors*, **21**(1):600–611, 2020.
  97. C. Sun, E. Kaiser, **S. L. Brunton**, and J. N. Kutz  
Deep reinforcement learning for optical systems: A case study of mode-locked lasers.  
*Machine Learning: Science and Technology*, **1**(4):045013, 2020.
  96. C. Gin, B. Lusch, **S. L. Brunton**, and J. N. Kutz  
Deep learning models for global coordinate transformations that linearize PDEs.  
*European Journal of Applied Mathematics*, **32**(3):515–539, 2020.
  95. B. Herrmann, P. Oswald, R. Semaan and **S. L. Brunton**  
Modeling synchronization in forced turbulent oscillator flows.  
*Communications Physics*, **3**(195), 2020.
  94. K. Kaheman, J. N. Kutz, and **S. L. Brunton**  
SINDy-PI: A Robust Algorithm for Parallel Implicit Sparse Identification of Nonlinear Dynamics.  
*Proceedings of the Royal Society A*, **476**(2242), 2020.

93. A. G. Nair, B. Strom, B. W. Brunton and **S. L. Brunton**  
Phase-consistent dynamic mode decomposition from multiple overlapping spatial domains.  
*Physical Review Fluids*, **5**:074702, 2020.
92. K. Champion, P. Zheng, A. Y. Aravkin, **S. L. Brunton**, and J. N. Kutz.  
A unified sparse optimization framework to learn parsimonious physics-informed models from data.  
*IEEE Access*, **8**:169259-169271, 2020.
91. E. Clark, J. N. Kutz, and **S. L. Brunton**  
Sensor Selection with Cost Constraints for Dynamically Relevant Bases.  
*IEEE Sensors*, **20**(19):11674–11687, 2020.
90. N. Fonzi, **S. L. Brunton**, and U. Fasel  
Data-driven nonlinear aeroelastic models of morphing wings for control.  
*Proceedings of the Royal Society A*, **476**(2239), 2020.
89. **S. L. Brunton**, Maziar S. Hemati, and K. Taira  
Special issue on machine learning and data-driven methods in fluid dynamics.  
*Theoretical and Computational Fluid Dynamics*, **34**(4):333–337, 2020.
88. A. Mendible, **S. L. Brunton**, A. Aravkin, W. Lowrie, and J. N. Kutz  
Dimensionality reduction and reduced order modeling for traveling wave physics.  
*Theoretical and Computational Fluid Dynamics*, **34**(4):385–400, 2020.
87. K. Bieker, S. Peitz, **S. L. Brunton**, J. N. Kutz, and M. Dellnitz.  
Deep Model Predictive Control with Online Learning for Complex Physical Systems.  
*Theoretical and Computational Fluid Dynamics*, **34**(4):577–591, 2020.
86. N. B. Erichson, L. Mathelin, Y. Zhewei, **S. L. Brunton**, M. Mahoney, and J. N. Kutz.  
Shallow Learning for Fluid Flow Reconstruction with Limited Sensors and Limited Data.  
*Proceedings of the Royal Society A*, **476**(2238), 2020.
85. M. Kamb, E. Kaiser, **S. L. Brunton**, and J. N. Kutz.  
Time-Delay Observables for Koopman: Theory and Applications.  
*SIAM Journal on Dynamical Systems*, **19**(2):886–917, 2020.
84. N. B. Erichson, K. Manohar, **S. L. Brunton**, and J. N. Kutz  
Randomized CP Tensor Decomposition.  
*Machine Learning: Science and Technology*, **1**(2):025012, 2020.
83. I. Scherl, B. Strom, J. K. Shang, O. Williams, B. L. Polagye, and **S. L. Brunton**.  
Robust Principal Component Analysis for Particle Image Velocimetry.  
*Physical Review Fluids*, **5**:054401, 2020. (Editors’ Suggestion)
82. T. L. Mohren, T. L. Daniel, and **S. L. Brunton**  
Learning precisely timed feedforward control of the sensor-denied inverted pendulum.  
*IEEE Control System Letters*, **4**(3):731–736, 2020.
81. N. B. Erichson, P. Zeng, K. Manohar, **S. L. Brunton**, J. N. Kutz, and A. Y. Aravkin.  
Sparse principal component analysis via variable projection.  
*SIAM Journal on Applied Mathematics*, **80**(2):977–1002, 2020.
80. B. de Silva, K. Champion, M. Quade, J.-Ch. Loiseau, J. N. Kutz, and **S. L. Brunton**  
PySINDy: A Python Package for the Sparse Identification of Dynamics from Data.  
*Journal of Open Source Software*, **5**(49): 2104, 2020.
79. B. de Silva, D. M. Higdon, **S. L. Brunton**, and J. N. Kutz.  
Discovery of physics from data: Universal laws and discrepancy models.



*Frontiers in Artificial Intelligence*, **3**:1–25, 2020.

- 78. K. Taira, M. S. Hemati, **S. L. Brunton**, Y. Sun, K. Duraisamy, S. Bagheri, S. T. M. Dawson, and C.-A. Yeh.  
Modal Analysis of Fluid Flows: Applications and Outlook.  
*AIAA Journal*, **58**(3):1–25, 2020.
- 77. A. A. Kaptanoglu, K. D. Morgan, C. J. Hansen, and **S. L. Brunton**  
Characterizing magnetic plasmas with dynamic mode decomposition.  
*Physics of Plasmas*, **27**:032108, 2020.
- 76. Z. Bai, E. Kaiser, J. L. Proctor, B. W. Brunton, J. N. Kutz, and **S. L. Brunton**  
Dynamic mode decomposition for compressive system identification  
*AIAA Journal*, **58**(2):561–574, 2020.
- 75. **S. L. Brunton**, B. R. Noack, and P. Koumoutsakos.  
Machine Learning for Fluid Mechanics.  
*Annual Review of Fluid Mechanics*, **52**:477–508, 2020.
- 74. Z. Bai, N. B. Erichson, M. Gopalakrishnan Meena, K. Taira, and **S. L. Brunton**  
Randomized methods to characterize large-scale vortical flow networks.  
*PLoS ONE*, **14**(11):e0225265, 2019.
- 73. K. Champion, B. Lusch, J. N. Kutz, and **S. L. Brunton**.  
Data-driven discovery of coordinates and governing equations.  
*Proceedings of the National Academy of Sciences*, **116**(45):22445–22451, 2019.
- 72. J. L. Callahan, K. Maeda, and **S. L. Brunton**.  
Robust flow reconstruction from limited measurements via sparse representation.  
*Physical Review Fluids*, **4**:103907, 2019.
- 71. N. B. Erichson, L. Mathelin, J. N. Kutz, and **S. L. Brunton**.  
Randomized dynamic mode decomposition.  
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Sidelobe canceling on a reconfigurable holographic metamaterial antenna.  
*IEEE APWC*, 2014.
7. T. Duriez, V. Parezanovic, J.-C. Laurentie, C. Fourment, J. Delville, J.-P. Bonnet, L. Cordier, B.

R. Noack, M. Segond, M. W. Abel, N. Gautier, J.-L. Aider, C. Raibaud, C. Cuvier, M. Stanislas, and **S. L. Brunton**.

Closed-loop control of experimental shear flows using machine learning (Invited).

AIAA Paper 2014-XXXX, 7<sup>th</sup> Flow Control Conference, June 2014.

6. **S. L. Brunton**, C. W. Rowley, and D. R. Williams.

Linear unsteady aerodynamic models from wind tunnel measurements.

AIAA Paper 2011-3581, 41<sup>st</sup> Fluid Dynamics Conference and Exhibit, June 2011.

5. **S. L. Brunton**, and C. W. Rowley.

Low-dimensional state-space representations for classical unsteady aerodynamic models.

AIAA Paper 2011-476, 49<sup>th</sup> AIAA Aerospace Sciences Meeting and Exhibit, Jan. 2011.

4. **S. L. Brunton**, and C. W. Rowley.

Unsteady aerodynamic models for agile flight at low Reynolds numbers.

AIAA Paper 2010-552, 48<sup>th</sup> AIAA Aerospace Sciences Meeting and Exhibit, Jan. 2010.

3. **S. L. Brunton**, C. W. Rowley, S. R. Kulkarni, and C. Clarkson.

Maximum power point tracking for photovoltaic optimization using extremum seeking.

34<sup>th</sup> IEEE Photovoltaic Specialist Conference, June 2009.

2. **S. L. Brunton**, and C. W. Rowley.

Modeling the unsteady aerodynamic forces on small-scale wings.

AIAA Paper 2009-1127, 47<sup>th</sup> AIAA Aerospace Sciences Meeting and Exhibit, Jan. 2009.

1. **S. L. Brunton**, C. W. Rowley, K. Taira, T. Colonius, J. Collins, and D. R. Williams.

Unsteady aerodynamic forces on small-scale wings: Experiments, simulations & models.

AIAA Paper 2008-520, 46<sup>th</sup> AIAA Aerospace Sciences Meeting and Exhibit, Jan. 2008.

## BOOK CHAPTERS

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9. **S. L. Brunton** and J. N. Kutz

Targeted use of deep learning for physics and engineering

Knowledge-Guided Machine Learning; Editors: Anuj Karpatne, Ramakrishnan Kanan, and Vipin Kumar

Data Mining and Knowledge Discovery Series of CRC Press, 2021.

8. **S. L. Brunton**

Machine Learning of Dynamics with Applications to Flow Control and Aerodynamic Optimization

Advances in Critical Flow Dynamics Involving Moving/Deformable Structures with Design Applications, Springer *Notes on Numerical Fluid Mechanics and Multidisciplinary Design* **147**, 2021.

7. E. Kaiser, J. N. Kutz, and **S. L. Brunton**

Data-Driven Approximations of Dynamical Systems Operators for Control

The Koopman Operator in Systems and Control, Springer, 2020.

6. J.-Ch. Loiseau, B. R. Noack, and **S. L. Brunton**

From the POD-Galerkin method to sparse manifold models

Handbook on Model Reduction, 2019.

5. **S. L. Brunton** and J. N. Kutz

Data-driven methods for reduced order modeling

Handbook on Model Reduction, 2019.

4. J. N. Kutz, S. Sargsyan, and **S. L. Brunton**

Leveraging sparsity and compressive sensing for reduced order modeling

MoRePaS, 2016.

3. Z. Bai, **S. L. Brunton**, B. W. Brunton, J. N. Kutz, E. Kaiser, A. Spohn, and B. R. Noack  
Data-driven methods in fluid dynamics: Sparse classification from experimental data  
Whither Turbulence and Big Data in the 21st Century (Springer, 2016).
2. J. N. Kutz, **S. L. Brunton**, and X. Fu  
Data methods and computational tools for characterizing complex cavity dynamics  
Nonlinear Optical Cavity Dynamics: From Microresonators to Fiber Lasers, P. Grelu Ed. (Wiley-VCH Verlag GmbH & Co. KGaA, 2016).
1. J. N. Kutz, X. Fu, **S. L. Brunton**, and J. Grosek  
Dynamic mode decomposition for robust PCA with applications to foreground/background subtraction in video streams and multi-resolution analysis  
CRC Handbook on Robust Low-Rank and Sparse Matrix Decomposition: Applications in Image and Video Processing, T. Bouwmans Ed. (CRC Press, 2015).

## FUNDING

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### Gift (\$10M)

1. \$10,000k Boeing Gift. "Naming 2nd Floor of IEB" (w/ Erin Schwartz and Dave Iyall from CoE)

### Active (\$7M out of \$41M)

9. \$20,000k NSF. "AI Institute in Dynamic Systems" (Co-PI & Associate Director, Kutz PI)
8. \$1,000k ARO PECASE. "PECASE: Uncovering Nonlinear Flow Physics with Machine Learning Control and Sparse Modeling." (PI)
7. \$600k NSF/DOE. "Improving Interpretable Machine Learning for Plasmas: Towards Physical Insight, Data-Driven Models, and Optimal Sensing." (Co-PI, Hansen PI)
6. \$1,000k AFOSR. "Data-driven control of unsteady flows." (Co-PI, Taira PI)
5. \$7,500k AFOSR MURI. "Neural-inspired sparse sensing and control for agile flight." (Co-PI, B. W. Brunton PI)
4. \$2,000k NSF HDR. "HDR: I-DIRSE-FW: Accelerating the Engineering Design and Manufacturing Life-Cycle with Data Science." (Co-PI, Balazinska PI)
3. \$450k AFOSR YIP. "YIP: Interpretable Nonlinear Models of Unsteady Flow Physics." (PI)
2. \$6,000k ARO MURI. "From Data-Driven Operator Theoretic Schemes to Prediction, Inference and Control of Systems." (Co-PI, Mezic PI)
1. \$2,400k NSF GCR. "GCR: Meta-Optical Angioscopes for Image-Guided Therapies in Previously Inaccessible Locations." (SP, Majumdar PI)

### Past (\$6M out of \$12M)

19. \$2,000k The Boeing Company. "Boeing Data Science Research." (PI)
18. \$750k AFOSR. "Network-based feedback control of fluid flows." (Co-PI, Taira PI)
17. \$450k ARO. "Active turbulence control from a network-theoretic perspective." (Co-PI, Taira PI)
16. \$400k The Boeing Company. "Bracket Standardization." (PI)
15. \$360k ARO YIP. "YIP: Uncovering Nonlinear Flow Physics with Machine Learning Control and Sparse Modeling." (PI)
14. \$1,000k DARPA. "Physics Inspired Learning and Learning the Order and Structure of Physics" (Co-PI, Kutz PI)
13. \$150k The Boeing Company. "Automated Fiber Placement." (Co-PI, Banerjee PI)
12. \$333k The Boeing Company. "Multi-Robot Control." (Co-PI, Devasia PI)
11. \$1,100k DOE. "3rd Generation integrated instrumentation: Enhancements to the adaptable monitoring package." (Co-PI, Polagye PI)
10. \$835k DOE. "*SWIFT*: A rapid approach to evaluating marine energy converter sound." (Co-PI, Polagye PI)
9. \$445k AFRL. "Integrating compressive sensing and machine learning for outer-loop target tracking control on an autonomous quadrotor aircraft." (Co-PI, B. W. Brunton PI)
8. \$215k The Boeing Company. "Executive Data Science Workshops." (PI)
7. \$650k the NSF. "MRI: Development of a hyper-sensed environmentally controlled wind tunnel" (PI w/ Riffell, Co-PIs Aliseda, Morgansen, Thornton)
6. \$1,000k DARPA. "Koopman operator theory and applications" (Co-PI, Mezic PI)
5. \$250k AFOSR SBIR. "Scalable Real-Time Background/Foreground Separation using Dynamic Mode Decomposition." (Co-PI, Kutz PI)
4. \$1,202k DOE. "Advanced Laboratories and Field Arrays." (Co-PI, DOE Consortium)
3. \$999k DOE. "An intelligent Adaptable Monitoring Package for Marine Renewable Energy Projects." (Co-PI, DOE FOA-0000971 Topic 2, Polagye PI)
2. \$643k The Boeing Company. "Predictive Shimming." (PI, Boeing A96600)
1. \$278k DOE. "Automatic optical detection and classification of marine animals around MHK converters using machine vision." (PI, DOE EE-0006785)

## MENTORING & ADVISING

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### Current (8 Postdocs, 9 PhD)

#### Postdocs:

Anastasia Bizyaeva [2022-present]. Postdoctoral Fellow, (*w/ N. Kutz*)  
Sam Otto [2022-present]. Postdoctoral Fellow, (*w/ N. Kutz*)  
Perna Patil [2022-present]. Postdoctoral Fellow, (*w/ N. Kutz*)  
Doris Voina [2022-present]. Postdoctoral Fellow, (*w/ N. Kutz*)  
Ryan Raut [2022-present]. Shanahan Postdoctoral Fellow, (*w/ N. Kutz and B. Brunton*)  
Aamod Shanker [2022-present]. Postdoctoral Fellow, *w/ A. Majumdar*  
Joseph Bakarji [2020-present]. Postdoctoral Fellow, *w/ N. Kutz*)  
Zachary Nicalaou [2019-present]. Postdoctoral Fellow, (*w/ N. Kutz*)

#### PhDs:

Sam Ahnert [2022-present]. PhD UW ME, (*w/ N. Kutz*)  
Nick Zolman [2022-present]. PhD UW ME, (*w/ N. Kutz*)  
Sara Ichinaga [2021-present]. PhD UW AMATH, (*w/ N. Kutz*)  
Max Gray [2021-present]. PhD UW CSE, (*w B. Brunton*)  
Brittany Lydon [2021-present]. PhD UW ME, (*w/ B. Polagye*)  
Joey Williams [2020-present]. PhD UW AMATH, (*w/ N. Kutz*)  
Frank Mei [2020-present]. PhD UW AMATH, (*w/ N. Kutz*)  
Michelle Hickner [2019-present]. PhD UW ME, (*w/ B. Brunton*)  
Kartik Krishna [2019-present]. PhD UW ME

### Lab Alumni (10 Postdocs, 17 PhDs graduated, 3 Masters, 2 Undergraduates, 6 Highschool)

#### Postdocs:

Urban Fasel [2020-2022]. Postdoctoral Fellow  
(*Next position: Assistant Professor, Imperial. College London*)  
Jason Bramburger [2020-2022]. Acting Assistant Professor, *w/ N. Kutz*)  
(*Next position: Assistant Professor, George Washington University*)  
Jordan Snyder [2019-2021]. Postdoctoral Fellow, (*w/ N. Kutz*)  
(*Next position: Postdoctoral Fellow, U. Copenhagen*)  
Benjamin Herrmann [2019-2021]. DAAD Fellow, (*w/ R. Semaan*)  
(*Next position: Assistant Professor, U. Chile*)  
Eurika Kaiser [2016-2021]. Moore Sloan Data Science Postdoctoral Fellow, (*w/ N. Kutz*)  
(*Next position: Private Consultant, Berlin*)  
Aditya Nair [2018-2020]. Postdoctoral Fellow, (*w/ B. Brunton*)  
(*Next position: Assistant Professor, UN Reno*)  
Brian DeSilva [2020]. Postdoctoral Fellow, (*w/ N. Kutz*)  
(*Next position: Machine Learning Engineer, Amazon*)  
Kazuki Maeda [2018-2019]. Acting Assistant Professor  
(*Next position: Postdoctoral Fellow, Stanford*)  
Bethany Lusch [2016-2018]. Postdoctoral Fellow, (*w/ B. Brunton & N. Kutz*)  
(*Next position: Assistant Computer Scientist, Argonne National Lab*)  
Ben Erichson [2016-2018]. Postdoctoral Fellow, (*w/ N. Kutz*)

*(Next position: Postdoctoral Fellow, Berkeley)*

### **PhDs Graduated:**

Isabel Scherl [2017-2022]. PhD UW ME, *(w/ B. Polagye)*

*(Next position: Postdoc, Caltech)*

Jared Callahan [2018-2022]. PhD UW ME

*(Next position: Atomic Industries)*

Kadierdan Kaheman [2018-2022]. PhD UW ME *(w/ N. Kutz)*

*(Next position: Dolby)*

Chen Gong [2016-2022]. PhD UW ME, *(w/ E. Seibel)* *(Next position: Intuit)*

Yuying Liu [2019-2022]. PhD UW AMATH *(w/ N. Kutz)*

*(Next position: Amazon)*

Alan Kaptanoglu [2019-2021]. PhD UW Physics

*(Next position: Postdoc, University of Maryland)*

Ariana Mendible [2017-2021]. PhD UW ME, *(w/ N. Kutz)*

*(Next position: Assistant Professor, Seattle University)*

Dan Shea [2019-2021]. PhD UW Materials, *(w/ N. Kutz)*

*(Next position: Global Health Labs)*

Emily Clark [2016-2020]. PhD UW Physics, *(w/ N. Kutz)*

*(Next position: Engineer, BAE Systems)*

Brian DeSilva [2017-2020]. PhD UW AMATH, *(w/ N. Kutz)*

*(Next position: Postdoctoral Fellow, UW)*

Thomas Mohren [2016-2020]. PhD UW ME, *(w/ T. Daniel)*

*(Next position: Postdoctoral Fellow, Rockefeller University)*

Kathleen Champion [2017-2019]. PhD UW AMATH, *(w/ N. Kutz)*

*(Next position: Machine Learning Engineer, Amazon)*

Sam Rudy [2016-2019]. PhD UW AMATH, *(w/ N. Kutz)*

*(Next position: NSF Postdoctoral Fellow, MIT)*

Ben Strom [2014-2019]. PhD UW ME, *(w/ B. Polagye)*

*(Next position: Co-Founder X-Flow Energy)*

Krithika Manohar [2013-2018]. PhD UW AMATH, *(w/ N. Kutz)*

*(Next position: NSF Postdoctoral Fellow, Caltech)*

Zhe Bai [2014-2018]. PhD UW ME

*(Next position: Postdoctoral Fellow, Lawrence Berkeley Labs)*

Michael Au-Yeung [2014-2016]. PhD UW ME, *(w/ P. Reinhall)*

*(Next position: Postdoctoral Fellow, Harvard Medical School)*

Emma Hansen [2020], Masters student at UW

*(Next position: PhD student, UBC)*

Tadbhagya Kumar [2015-2016]. Masters student at UW, *(w/ J. Riley)*

*(Next position: PhD student, UF)*

Sudharsan Madhavan [2012-2014]. Masters student at UW, *(w/ J. Riley)*

*(Next position: PhD student, Tufts)*

Seth Pendergrass [2014-2016]. Undergraduate at UW

*(Next position: Engineer, Microsoft)*

Jessica Fortino [2014]. Undergraduate at UW

*(Next position: Engineer, Seattle Public Utility)*

Sanya Gupta [2020-2021]. High school student at Lakeside  
(*Next position: Undergraduate, Columbia*)  
Jessica Ruan [2020-2021]. High school student at Lakeside  
(*Next position: Undergraduate, CMU*)  
Aria Tang [2020-2021]. High school student at Lakeside  
(*Next position: Undergraduate, UW*)  
Christina Yao [2019-2020]. High school student at Lakeside  
(*Next position: Undergraduate, CMU*)  
Eric Chen [2019-2020]. High school student at Lakeside  
(*Next position: Undergraduate, Princeton*)  
Surtaz Khan [2017-2019]. High school student at Lakeside  
(*Next position: Undergraduate, Yale*)

## TEACHING

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### Workshops and Teaching Abroad

- Caltech Short Course on Data-Driven Modeling and Control, Pasadena, 2021
- VKI Machine Learning in Fluids, Brussels, 2020
- DAMPT Summer School, Cambridge UK, 2019
- IPAM Long Workshop, UCLA, CA, 2019
- Rome Workshop and Summer School, 2017

### Instructor, University of Washington

- **ME565 - Mechanical Engineering Analysis II**,  
Winter 2020, 143 students, Course Evaluations: Median 4.7/5.0, Adj. Median 4.8/5.0  
Winter 2019, 120 students, Course Evaluations: Median 4.6/5.0, Adj. Median 4.7/5.0  
Winter 2018, 147 students, Course Evaluations: Median 4.6/5.0, Adj. Median 4.9/5.0  
Winter 2017, 122 students, Course Evaluations: Median 4.8/5.0, Adj. Median 4.8/5.0  
Winter 2016, 96 students, Course Evaluations: Median 4.7/5.0, Adj. Median 4.8/5.0  
Winter 2015, 62 students, Course Evaluations: Median 4.8/5.0, Adj. Median 5.0/5.0
- **ME564 - Mechanical Engineering Analysis I**,  
Fall 2018, 132 students, Course Evaluations: Median 4.8/5.0, Adj. Median 4.8/5.0  
Fall 2017, 149 students, Course Evaluations: Median 4.8/5.0, Adj. Median 4.9/5.0  
Fall 2016, 127 students, Course Evaluations: Median 4.8/5.0, Adj. Median 4.9/5.0  
Fall 2015, 88 students, Course Evaluations: Median 4.8/5.0, Adj. Median 4.9/5.0  
Fall 2014, 67 students, Course Evaluations: Median 4.9/5.0, Adj. Median 4.8/5.0
- **ME520 - Control Theory Bootcamp**,  
Winter 2017, 8 students, Course Evaluations: Median 4.8/5.0, Adj. Median 4.8/5.0
- **ME599 - Machine Learning Control**,  
Spring 2020, 40 students  
Spring 2017, 40 students
- **ME599/AMATH590 - Machine Learning for Fluid Mechanics**,  
Spring 2021, 40 students
- **AMATH301 - Beginning Scientific Computing**,  
Spring 2014, 309 students  
Winter 2014, 309 students, Course Evaluations: Median 3.86/5.0, Adj. Median 4.1/5.0  
Fall 2013, 368 students, Course Evaluations:  
Winter 2013, 300 students, Course Evaluations: Median 3.9/5.0, Adj. Median 4.1/5.0

### Teaching Assistant, Princeton University

- MAE434 - Modern Control, Fall 2009
- MAE433 - Automatic Control Systems, Spring 2009, 2010
- MAE331 - Aircraft Flight Dynamics, Fall 2008

### Teaching Assistant, California Institute of Technology

- CDS140ab - Introduction to Dynamics, Fall 2005, Spring 2006



## INVITED TALKS (SLB INVITED)

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### 35 Plenary/Keynote/Named out of 194 invited talks

2023, Jan.	MSU Colloquium CMSE (virtual)
2023, Jan.	UCSD Controls & Dynamics Seminar
2023, Jan.	USC Aerospace and Mechanical Engineering Seminar
2023, Jan.	IPAM Learning and Emergence in Molecular Systems
2023, Jan.	Caltech GALCIT G1 Seminar Series
2023, Jan.	Virginia Tech Fluid Mechanics ( <b>Hassan Aref Memorial Lecture</b> )
2023, Jan.	Dynamics Days ( <b>Single Track</b> )
2023, Jan.	ReCoVar Seminar Tutorial (virtual)
2022, Dec.	Cambridge's Data-Centric Engineering Webinar
2022, Nov.	AI for Good (virtual)
2022, Nov.	APS DFD, Indianapolis
2022, Nov.	Fluid Mechanics Webinar Series, Journal of Fluid Mechanics
2022, Oct.	UW CoE Dean's External Advisory Board, Seattle
2022, Oct.	Machine Learning and Its Applications, Lockheed/Sikorsky (virtual)
2022, Oct.	Machine Learning and Its Applications, Singapore (virtual)
2022, Oct.	Turing Institute, Nature Reviews Physics: Machine learning in fluid dynamics and climate physics, (virtual), ( <b>Single Track</b> )
2022, Sep.	PNNL Seminar, Seattle
2022, Sep.	DH-COM, Seattle, ( <b>Keynote</b> )
2022, Aug.	Brown "Crunch" Seminar, (virtual)
2022, Aug.	BIRS workshop M5: Mathematics of Multiphase, Multiscale, Multiphysics Models Oaxaca Mexico, ( <b>Keynote</b> )
2022, July	International Forum of Artificial Intelligence, Virtual, ( <b>Keynote</b> )
2022, July	SIAM Annual Meeting (joint Plenary with Life Sciences), Pittsburgh, ( <b>Plenary</b> )
2022, June	JAXA Fluid Dynamics Conference and the Aerospace Numerical Simulation Symposium, Virtual, ( <b>Plenary</b> )
2022, June	Project Tech Conference, Virtual, ( <b>Keynote</b> )
2022, June	International Association for Hydrology Research, Spain High-Level Panel on "Artificial Intelligence"
2022, June	International Association for Hydrology Research, Spain ( <b>KK Wong Distinguished Keynote</b> )
2022, June	IUTAM Denmark ( <b>Keynote</b> )
2022, June	French Workshop on Machine Learning and Physics ( <b>Keynote</b> )
2022, June	ACC Tutorial, Virtual
2022, June	ECCOMAS Oslo ( <b>Minisymposium Keynote</b> )
2022, Apr.	UCLA MAE Seminar
2022, Apr.	Caltech CLIMA Group Seminar
2022, Apr.	Caltech GALCIT Fluid Seminar
2022, Apr.	Flatiron Institute, CCA seminar, NYC
2022, Apr.	SoftRobotics, Edinburgh (virtual)
2022, Mar.	Caltech AE150 Seminar
2022, Mar.	UVA Engineering Charles L. and Ann Lee Brown Distinguished Seminar, Virtual
2022, Mar.	Boeing Data Analytics Community of Excellence (CoE), Virtual
2022, Jan.	Critical Transitions in Complex Systems Webinar, Virtual, ( <b>Plenary</b> )
2022, Jan.	Stanford Fluid Mechanics Seminar
2022, Jan.	JHU TRIPODS/MINDS Winter School & Workshop, Virtual, ( <b>Keynote</b> )

2022, Jan. Imperial College London, Virtual  
 2021, Dec. Gwangju Institute of Science and Technology (GIST), Korea, Virtual, (**Plenary**)  
 2021, Dec. Dutch Digital Twin Programme, Virtual, (**Keynote**)  
 2021, Dec. CITYU-Hong Kong Seminar, Virtual  
 2021, Dec. HDS-LEE Seminar, Virtual, (**Keynote**)  
 2021, Dec. Caltech MCE 40 Guest Lecture  
 2021, Nov. UMN ML Seminar, Virtual  
 2021, Nov. Boeing Korea and Japan Seminar, Virtual  
 2021, Nov. "Brewing a coffee with a shot of math" Podcast, Virtual  
 2021, Nov. Mexican Physical Society, Division of Fluid Dynamics Congress, Virtual (**Keynote**)  
 2021, Nov. UCSB Kavli Institute  
 2021, Oct. Endress-Hauser, Virtual (**Keynote**)  
 2021, Oct. GoGE Workshop on Optimization, Decision, and AI, Virtual  
 2021, Oct. Caltech CMX Seminar, Virtual  
 2021, Oct. McKeon Lab at Caltech,  
 2021, Oct. Clarkson Center for Complex Systems Science, Virtual  
 2021, Oct. UT Austin ASE Fluid Mechanics seminar, Virtual  
 2021, Oct. UC Santa Cruz Seminar, Virtual  
 2021, Oct. Oak Ridge National Laboratory School on Machine Learning and Automated Experiment in Scanning Probe Microscopy, Virtual  
 2021, Sept. MMLDT-CSET, Virtual  
 2021, Sept. Turing Institute DCEng, Virtual  
 2021, Sept. Leipzig, Virtual  
 2021, July SIAM Annual Meeting, Virtual  
 2021, July DE Shaw, Virtual  
 2021, May SIAM DS, Virtual  
 2021, May U. Melbourne Seminar, Virtual  
 2021, May Boeing Engineering Leadership Meeting, Virtual (**To all senior engineering VPs**)  
 2021, May Caltech Control Meets Learning Seminar, Virtual  
 2021, April Strathclyde Seminar, Virtual  
 2021, April AIAA PNW Lecture, Virtual  
 2021, April KTH AC&ML Seminar, Virtual  
 2021, April TU-Braunschweig Seminar, Virtual  
 2021, April Berkeley DREAM/CPAR Seminar, Virtual  
 2021, Mar. Stevens Institute of Technology Seminar, Virtual  
 2021, Mar. Lisbon Seminar, Virtual  
 2021, Mar. APS March Meeting, Virtual  
 2021, Mar. SIAM CSE, Virtual  
 2021, Mar. VKI, Virtual (**Keynote**)  
 2021, Mar. Amazon Salons  
 2021, Mar. IEEE Robotics Podcast  
 2021, Feb. Texas A&M Seminar, Virtual  
 2021, Feb. Imperial College London Seminar, Virtual  
 2021, Jan. Rutgers Seminar, Virtual  
 2021, Jan. UPenn Seminar, Virtual  
 2021, Jan. Engineering Mind Podcast, Virtual  
 2021, Jan. LNLL Seminar, Virtual  
 2021, Jan. Boeing D-BRASS Seminar, Virtual

2021, Jan. AIAA SciTech Meeting, Virtual  
 2021, Jan. Stanford Fluids Seminar, Virtual  
 2021, Jan. Network Science for Fluid Mechanics, Virtual  
 2021, Jan. WCCM/ECCOMAS 2020, Virtual (**Minisymposium Keynote**)  
 2021, Jan. IPAM Transport and Mixing in Complex and Turbulent Flows, Virtual  
 2020, Dec. WorldQuant, Virtual (**Bridgestone Lecture**)  
 2020, Dec. Aggregate Intellect Spotlight Talk, Virtual  
 2020, Nov. ORNL Seminar, Virtual (w/ Kaptanoglu)  
 2020, Nov. AAAI Symposium on Physics-Guided AI to Accelerate Scientific Discovery, Virtual  
 2020, Nov. Universidade do Estado de Santa Catarina Brazil Seminar, Virtual  
 2020, Nov. ARO/ARL Seminar on Data-Driven Modeling and Discovery, Virtual (w/ Callaham)  
 2020, Oct. 2020 Computational Infrastructure for Geodynamics (CIG) Community Workshop, Virtual (**Plenary**)  
 2020, Sept. Second Symposium on Machine Learning and Dynamical Systems, Fields Institute, Toronto, Virtual (**Plenary**)  
 2020, Sept. UC Merced Mechanical Engineering Seminar Series, Virtual  
 2020, Sept. University of Virginia Design and Data Analysis (DADA) lecture series, Virtual  
 2020, Aug. UTD Mechanical Engineering Seminar Series, Virtual  
 2020, Aug. 4th IEEE Conference on Control Technology and Applications, Virtual (**IEEE Young Professionals Special Event**)  
 2020, Aug. NRL Seminar, Virtual  
 2020, July. Cirrus Tech Talk, Virtual  
 2020, Feb. University of Hawaii Manoa Seminar, Waikiki, HA  
 2020, Feb. NSF Workshop: Exuberance of Machine Learning in Transport Phenomena, Dallas, TX  
 2019, Nov. APS DFD, Seattle, WA  
 2019, Nov. Caltech GALCIT Seminar, Pasadena, CA  
 2019, Nov. USC Seminar, Los Angeles, CA  
 2019, Oct. UCLA IPAM Seminar, Los Angeles, CA  
 2019, Oct. Rice ME Seminar, Los Angeles, CA  
 2019, Oct. UCLA ECE Seminar, Los Angeles, CA  
 2019, June. Boeing CTO's DM4SC Forum, Renton, WA  
 2019, June. MolKyn19, Berlin, Germany  
 2019, June. Workshop on Multisensory Integration in Insect Flight Dynamics, Bangalore, India  
 2019, May. DTU Applied Mathematics and Computer Science Dept., Copenhagen, Denmark  
 2019, May. SIAM Dynamical Systems, Snowbird, UT  
 2019, April. OSU Seminar, Ohio State University, Columbus, OH  
 2019, April. Aerospace Engineering Seminar, Georgia Tech, Atlanta, GA  
 2019, April. Electrical and Systems Engineering Seminar, Washington University, St. Louis, MO  
 2019, April. SILO Seminar, UW, Madison, WI  
 2019, April. Biophysics and Soft Matter Seminar, Simon Fraser, Vancouver, BC, Canada  
 2019, Feb. SIAM, Computational Science and Engineering Conference, Spokane WA (**Early Career Prize Plenary**)  
 2019, Feb. SIAM, Computational Science and Engineering Conference, Spokane WA  
 2019, Feb. GAMM, Vienna, Austria, (**Topical Keynote**)  
 2019, Feb. Geophysical flows workshop, Rennes, France, (**Keynote**)  
 2018, Nov. APS DFD, Atlanta, GA  
 2018, Nov. Georgia Tech Aero Seminar, Atlanta, GA  
 2018, Nov. AI & Geophysical Dynamics, Brest, France, (**Keynote**)

2018, Nov. Boeing Distinguished Research and Scholar Seminar (B-DRASS), Everett, WA  
 2018, Sept. Carderock Site visit at UW Applied Physics Lab, Seattle, WA  
 2018, Sept. ITRI Taiwanese Delegation, Seattle, WA  
 2018, July WCCM mini-symposium, New York NY, **(Keynote)**  
 2018, May University of Washington Industrial and Systems Engineering Seminar, Seattle, WA  
 2018, April Johns Hopkins Center for Environ. & Applied Fluid Mech. Seminar, Baltimore MD  
 2018, April USC Center for Systems and Control Seminar, Los Angeles, CA  
 2018, April SIAM Uncertainty Quantification, Los Angeles, CA  
 2018, Mar. RIKEN Institute, Tokyo, Japan  
 2018, Mar. US-Japan Workshop on Bridging Fluid Mechanics and Data Science, Tokyo, Japan  
 2018, Mar. Department Seminar, TU Munich, Munich, Germany  
 2018, Mar. GAMM Conference, Munich, Germany  
 2018, Mar. UWIN Seminar, Seattle, WA  
 2017, Dec. Seminar at Paderborn, Germany  
 2017, Dec. DFG Workshop, Goettingham, Germany, **(Keynote)**  
 2017, Nov. APS DFD, Denver, CO  
 2017, Nov. West Coast ROM Workshop, Berkeley CA, **(Keynote)**  
 2017, Nov. AOS Workshop, Seattle, WA  
 2017, Nov. IPAM Workshop, UCLA, Los Angeles CA  
 2017, Sept. Set Oriented Numerics Workshop, Santa Barbara CA, **(Keynote)**  
 2017, July State of the Art Review (SOAR8), Oxford, UK  
 2017, July wMLC-2 Workshop, Valenciennes, France, **(Plenary)**  
 2017, June Boeing BARC seminar, Harbor Point Technical Center, Harbor Point, WA  
 2017, May SIAM Dynamical Systems, Snowbird, UT  
 2017, May MIT Applied Mathematics Seminar, Cambridge MA  
 2017, April Virginia Tech Applied Mathematics Seminar, Blacksburg VA  
 2017, April Harvard Applied Mathematics Seminar, Cambridge MA  
 2017, March APS March Meeting, New Orleans, LA  
 2017, March SIAM Conference on Computational Science and Engineering, Atlanta, GA  
 2017, Jan. Banff BIRS Workshop, Banff, Canada, **(Plenary)**  
 2017, Jan. Neural Computation and Engineering Connection, Seattle, WA  
 2017, Jan. Caltech MCE Seminar, Pasadena, CA  
 2016, Nov. DARPA Workshop, Santa Barbara, CA  
 2016, Oct. The Future of Vibration Energy Transfer in Solids & Structures Workshop, Seattle, WA  
 2016, Aug. NOLCOS, Monterey, CA  
 2016, July UTRC, Hartford, CT  
 2016, July SIAM Annual Meeting, Boston, MA  
 2016, June Boeing Workshop, Seattle WA  
 2016, June AIAA Aviation Meeting, DC  
 2016, April Laboratoire d'Hydrodynamique de l'Ecole polytechnique, Paris, France  
 2016, April Laboratoire d'Informatique pour la Mécanique et les Sciences de l'Ingenieur, France  
 2016, April SIAM Conference on Uncertainty Quantification, Lausanne, Switzerland  
 2016, March Courant Institute of Mathematical Sciences, New York, NY  
 2015, Nov. United Technologies Research Corporation, Hartford, CT  
 2015, Aug. International Congress on Industrial and Applied Mathematics, Beijing, China  
 2015, July Bifurcations in Fluid Dynamics, Paris, France  
 2015, July SIAM Conference on Control and its Applications, Paris, France  
 2015, May SIAM Dynamical Systems, Snowbird, UT

2015, April Whither Turbulence and Big Data in the 21st Century, Corsica, France  
 2015, March SIAM Conference on Computational Science and Engineering, Salt Lake City  
 2015, Feb. SFB 880 Flow Control Workshop, TU-Braunschweig, Germany  
 2015, Feb. TU-Berlin, Germany  
 2014, Aug. Berkeley Electrical Engineering Semi-Autonomous Group, Berkeley, CA  
 2014, April SIAM Conference on Uncertainty Quantification, Savannah GA  
 2014, Jan. UW Mechanical Engineering Seminar, Seattle, WA  
 2013, May SIAM Dynamical Systems  
 2013, April PPRIME, Poitiers France  
 2013, April MIT, Physical Mathematics Seminar, Cambridge MA  
 2013, Feb. SIAM Conference on Computational Science and Engineering  
 2012, Oct. University of Washington, Applied Physics Laboratory, Seattle, WA  
 2012, Sept. United Technologies Research Center, Hartford CT  
 2012, June 42<sup>nd</sup> AIAA Fluid Dynamics Conference  
 2011, Oct. University of Washington, Applied Math Department, Seattle, WA  
 2011, June 41<sup>st</sup> AIAA Fluid Dynamics Conference  
 2011, May SIAM Conference on Applications of Dynamical Systems  
 2011, March Illinois Institute of Technology, Mechanical, Materials and Aerospace Engineering  
 2006, Dec. Princeton Program in Applied and Computational Mathematics, Dynamical Systems & Nonlinear Science Seminar

## OTHER TALKS

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2022, June USNC/TAM, Austin (Bhagwandin, Lee, Callaham, Martin, Brunton)  
 2022, June USNC/TAM, Austin (Bakarji, Champion Kutz, Brunton)  
 2022, June USNC/TAM, Austin (Fasel, Kutz, Brunton, Brunton)  
 2022, June USNC/TAM, Austin (Nuenhoff, Callaham, Martin, Brunton)  
 2022, June USNC/TAM, Austin (Scherl, Polagye, Brunton)  
 2022, June USNC/TAM, Austin (Herrmann, Baddoo, Brunton, McKeon)  
 2022, June USNC/TAM, Austin (Baddoo, Herrmann, Brunton, McKeon)  
 2022, Mar. APS March Meeting (Kaptanoglu, Callaham, Hansen, Brunton)  
 2022, Mar. APS March Meeting (Fasel, Kutz, Brunton, Brunton)  
 2022, Mar. SIAM PD, Virtual (Fasel, Kutz, Brunton, Brunton)  
 2021, Dec. IAEA Tech. Meeting on Fusion Data Processing, Validation and Analysis, Virtual (De Pascuale, Lore, Laiu, Russo, Phathanapirom, Brunton, Canik, Cetiner, Kutz, Reinke, Stangeby)  
 2021, Nov. APS DFD, Virtual (Nicolau, Kafker, Brunton, Kutz)  
 2021, Nov. APS DFD, Virtual (Kaptanoglu, Callaham, Aravkin, Hansen, Brunton)  
 2021, Nov. APS DFD, Virtual (Callaham, Brunton, Loiseau)  
 2021, Nov. APS DFD, Virtual (Bakarji, Callaham, Brunton, Kutz)  
 2021, Nov. APS DFD, Virtual (Hansen, Brunton, Song)  
 2021, Nov. APS DFD, Virtual (Scherl, Polagye, Brunton)  
 2021, Nov. APS DFD, Virtual (Baddoo, Herrmann, McKeon, Kutz, Brunton)  
 2021, Nov. APS DFD, Virtual (Herrmann, Baddoo, Semaan, Brunton, McKeon)  
 2021, Nov. APS DFD, Virtual (Fasel, Dawson, Brunton)  
 2021, Nov. APS DFD, Virtual (Hickner, Fasel, Nair, Brunton, Brunton)  
 2021, Nov. APS DFD, Virtual (Krishna, Brunton, Song)

2021, Nov. APS DFD, Virtual (Sashidhar, Sahba, Wilcox, McDaniel, Brunton, Kutz)  
 2021, Nov. APS DFD, Virtual (Pan, Brunton, Kutz)  
 2021, Oct. Physical Review Fluids Journal Club (Kaptanoglu, Callaham, Hansen, Aravkin, Brunton)  
 2021, Sep. MMLDT-CSET 2021 (Scherl, Strom, Williams, Shang, Polagye, Brunton)  
 2021, Sep. MMLDT-CSET 2021, Virtual (Callaham, Kutz, Brunton)  
 2021, Sep. MMLDT-CSET 2021, Virtual (Liu, Kutz, Brunton)  
 2021, Sep. MMLDT-CSET 2021, Virtual (Goldschmidt, Kaiser, DuBois, Brunton, Kutz)  
 2021, Sep. MMLDT-CSET 2021, Virtual (Lange, Kutz, Brunton)  
 2021, July USNCCM16, Virtual (Scherl, Strom, Shang, Williams, Polagye, Brunton; **Minsymposium Keynote**)  
 2021, July USNCCM16, Virtual (Herrmann, Baddoo, Semaan, Brunton, McKeon; **Minsymposium Keynote**)  
 2021, July USNCCM16, Virtual (Fasel, Fonzi, Brunton)  
 2021, July USNCCM16, Virtual (Callaham, Rigas, Loiseau, Brunton)  
 2020, Nov. APS DFD, Virtual (Brunton, Baddoo, Herrmann, McKeon)  
 2020, Nov. APS DFD, Virtual (Rodriguez, Iliopoulos, Brunton, Carlberg, Michopoulos)  
 2020, Nov. APS DFD, Virtual (Kaptanoglu, Morgan, Hansen, Brunton)  
 2020, Nov. APS DFD, Virtual (Krishna, Song, Brunton)  
 2020, Nov. APS DFD, Virtual (Nair, Strom, Brunton, Brunton)  
 2020, Nov. APS DFD, Virtual (Mendible, Koch, Lange, Brunton, Kutz)  
 2020, Nov. APS DFD, Virtual (Callaham, Kutz, Brunton, Brunton)  
 2020, Nov. APS DFD, Virtual (Dawson, Brunton)  
 2020, Nov. APS DFD, Virtual (Kaiser, Kutz, Brunton)  
 2020, Nov. APS DFD, Virtual (Fasel, Fonzi, Brunton)  
 2020, Nov. APS DFD, Virtual (Scherl, Strom, Shang, Williams, Polagye, Brunton)  
 2020, Nov. APS DFD, Virtual (Herrmann, Pohl, Brunton, Semaan)  
 2020, Nov. Michigan Institute for Data Science (MIDAS) Annual Symposium (Wu, Brunton, Revzen)  
 2020, Oct. GDR Flow Control, France, Virtual (Noack, Li, Fan, Zhou, Li, Tan, Maceda, Lusseyran, Deng, Pastur, Fernex, Semaan, Albers, Schroder, Morzynski, Brunton; **Keynote**)  
 2020, June Network Science for Fluid Dynamics, Virtual (Nair, Brunton, Taira; **invited**)  
 2020, May AIAA AVIATION, Virtual (Nair, Brunton, Taira; **invited**)  
 2019, Nov. APS DFD, Seattle, WA (Scherl, Strom, Brunton, Polagye)  
 2019, Nov. APS DFD, Seattle, WA (Li, Kaiser, Laima, Li, Brunton, Kutz)  
 2019, Nov. APS DFD, Seattle, WA (Lange, Brunton, Kutz)  
 2019, Nov. APS DFD, Seattle, WA (Nair, Taira, Brunton, Brunton)  
 2019, Nov. APS DFD, Seattle, WA (Herrmann, Brunton, Semaan)  
 2019, Nov. APS DFD, Seattle, WA (De Silva, Higdon, Brunton, Kutz)  
 2019, Nov. APS DFD, Seattle, WA (Bai, Brunton)  
 2019, Nov. APS DFD, Seattle, WA (Callaham, Loiseau, Kutz, Brunton)  
 2019, Nov. APS DFD, Seattle, WA (Kaheman, Kaiser, Nair, Kutz, Brunton)  
 2019, Nov. APS DFD, Seattle, WA (Champion, Lusch, Kutz, Brunton)  
 2019, Nov. APS DFD, Seattle, WA (Novosselov, Guan, Brunton)  
 2019, Nov. APS DFD, Seattle, WA (Gin, Lusch, Brunton, Kutz)  
 2019, Nov. APS DFD, Seattle, WA (Clark, Askham, Brunton, Kutz)  
 2019, Nov. APS DFD, Seattle, WA (Manohar, Kutz, Brunton)  
 2019, Nov. APS DFD, Seattle, WA (Mendible, Aravkin, Lowrie, Brunton, Kutz)

2019, Nov. APS DFD, Seattle, WA (Krishna, Nair, Kaiser, Brunton)  
 2019, May SIAM DS, Snowbird, UT (Kutz, Lusch, Brunton; *invited*)  
 2019, May SIAM DS, Snowbird, UT (Manohar, Kutz, Brunton; *invited*)  
 2019, May SIAM DS, Snowbird, UT (Kaiser, Brunton, Kutz; *invited*)  
 2019, May SIAM DS, Snowbird, UT (Dawson, Brunton; *invited*)  
 2019, May SIAM DS, Snowbird, UT (Nair, Yeh, Kaiser, Noack, Brunton, Taira; *invited*)  
 2019, May SIAM DS, Snowbird, UT (Mangan, Askham, Brunton, Kutz, Proctor; *invited*)  
 2019, May Seventeenth International Conference on Numerical Combustion, Aachen, Germany  
 (Bieker, Peitz, Brunton, Kutz, Dellnitz)  
 2019, April PCM-CMM, Krakow, Poland (Noack, Fan, Zhou, Li, Kaiser, Brunton; **Plenary**)  
 2019, Feb. SIAM CSE, Spokane, WA (Callaham, Maeda, Brunton; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Bai, Carlberg, Peng, Brunton; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Kaiser, Brunton, Kutz; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Kutz, Rudy, Brunton; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Mendible, Brunton, Kutz; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Nair, Yeh, Kaiser, Noack, Brunton, Taira; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Champion, Brunton, Kutz; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Rudy, Kutz, Brunton; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Manohar, Kutz, Brunton; *invited*)  
 2019, Feb. SIAM CSE, Spokane, WA (Maeda, Brunton; *invited*)  
 2018, Nov. APS DFD, Atlanta, GA (Kaiser, Kutz, Brunton)  
 2018, Nov. APS DFD, Atlanta, GA (Rudy, Kutz, Brunton)  
 2018, Nov. APS DFD, Atlanta, GA (Scherl, Maeda, Polagye, Brunton)  
 2018, Nov. APS DFD, Atlanta, GA (Nair, Yeh, Kaiser, Noack, Brunton, Taira)  
 2018, Nov. APS DFD, Atlanta, GA (Bai, Erichson, Meena, Taira, Brunton)  
 2018, Nov. APS DFD, Atlanta, GA (Clark, Askham, Brunton, Kutz)  
 2018, Nov. APS DFD, Atlanta, GA (Callaham, Maeda, Brunton)  
 2018, Nov. APS DFD, Atlanta, GA (Mohren, Brunton, Brunton, Daniel)  
 2018, Nov. APS DFD, Atlanta, GA (Strom, Scherl, Brunton, Polagye)  
 2018, Nov. APS DFD, Atlanta, GA (Manohar, Kutz, Brunton)  
 2018, June ISFV, Zurich, Switzerland (Brunton)  
 2018, June IUTAM, Santorini, Greece (Brunton)  
 2018, June NetSci, Paris, France (Meena, Bai, Yeh, Brunton, Taira)  
 2017, Nov. APS DFD, Denver, CO (Kaiser, Kutz, Brunton)  
 2017, Nov. APS DFD, Denver, CO (Erichson, Brunton, Kutz)  
 2017, Nov. APS DFD, Denver, CO (Lusch, Kutz, Brunton)  
 2017, Nov. APS DFD, Denver, CO (Bai, Kaiser, Proctor, Kutz, Brunton)  
 2017, Nov. APS DFD, Denver, CO (Manohar, Kaiser, Brunton, Kutz, Brunton)  
 2017, Nov. APS DFD, Denver, CO (Strom, Brunton, Polagye)  
 2017, May SIAM DS, Snowbird, UT (Kunert-Graf, Proctor, Brunton, Kutz; *invited*)  
 2017, May SIAM DS, Snowbird, UT (Mangan, Kutz, Brunton, Proctor; *invited*)  
 2017, May SIAM DS, Snowbird, UT (Quade, Abel, Shafi, Niven, Noack, Brunton; *invited*)  
 2017, May SIAM DS, Snowbird, UT (Manohar, Kaiser, Brunton, Kutz; *invited*)  
 2017, May SIAM DS, Snowbird, UT (Kaiser, Noack, Spohn, Niven, Cattafesta, Morzynski, Brun-  
 ton, Brunton, Kutz; *invited*)  
 2017, March SIAM CSE, Atlanta, GA (Manohar, Kaiser, Brunton, Kutz; *invited*)  
 2017, March SIAM CSE, Atlanta, GA (Kutz, Sargsyan, Manohar, Brunton; *invited*)  
 2017, March SIAM CSE, Atlanta, GA (Nair, Taira, Brunton; *invited*)

2016, Nov. APS DFD, Portland, OR (Brunton, Proctor, Kutz)  
 2016, Nov. APS DFD, Portland, OR (Bai, Kaiser, Proctor, Kutz, Brunton)  
 2016, Nov. APS DFD, Portland, OR (Kaiser, Noack, Spohn, Cattafesta, Morzynski, Caviller, Brunton, Brunton)  
 2016, Nov. APS DFD, Portland, OR (Nair, Meena, Taira, Brunton)  
 2016, Nov. APS DFD, Portland, OR (Manohar, Kaiser, Brunton, Kutz)  
 2016, Nov. APS DFD, Portland, OR (Strom, Brunton, Polagye)  
 2016, Nov. APS DFD, Portland, OR (Rudy, Brunton, Proctor, Kutz)  
 2016, Sept. Annual Meeting of the Japan Society of Fluid Mechanics, Nagoya, Japan (Taira, Nair, Brunton)  
 2016, Aug. ICTAM, Montreal, Canada (Taira, Nair, Brunton)  
 2016, July SIAM Annual Meeting, Boston, MA (Nair, Taira, Brunton)  
 2016, April Proceedings of the 4th Marine Energy Technology Symposium, Washington D.C. (Strom, Brunton, Aliseda, Polagye)  
 2016, Feb. SPIE Photonics West, San Francisco, CA (Brunton, Johnson, Fu, Kutz)  
 2016, Jan. AIAA Sci-Tech, San Diego, CA (Strom, Aliseda, Polagye, Brunton)  
 2015, Nov. APS DFD, Boston, MA (Taira, Nair, Brunton)  
 2015, Nov. APS DFD, Boston, MA (Strom, Brunton, Polagye)  
 2015, Nov. APS DFD, Boston, MA (Manohar, Brunton, Kutz)  
 2015, Nov. APS DFD, Boston, MA (Bai, Brunton, Brunton, Kutz, Kaiser, Spohn, Noack)  
 2015, Oct. GDR 2502 Flow Separation Control and GDR MOSAR, LIMSI, Orsay, France (Noack, Duriez, Parezanovic, von Krbek, Kaiser, Cordier, Bonnet, Segond, Abel, Gautier, Aider, Raibaud, Cuvier, Stanislas, Debien, Mazellier, Kourta, Brunton; **Plenary**)  
 2015, Sept. IEEE APWC, Torino Italy (Johnson, Brunton, Kundtz, Kutz)  
 2015, Sept. 11th European Wave and Tidal Energy Conference, Nantes, France (Strom, Brunton, Polagye)  
 2015, April Proceedings of the 3th Marine Energy Technology Symposium, Washington D.C. (Strom, Brunton, Polagye)  
 2015, Jan. SICB, West Palm Beach, FL (Eberle, Brunton, Fish, Daniel)  
 2014, Dec. AGU Fall Meeting, San Francisco, CA (Polagye, Strom, Haegle, Mehta, Bowman, Brunton)  
 2014, Nov. APS DFD, San Francisco, CA (Madhavan, Brunton, Riley)  
 2014, Nov. APS DFD, San Francisco, CA (Parezanovic, Cordier, Noack, Spohn, Bonnet, Duriez, Segond, Abel, Brunton)  
 2014, Nov. APS DFD, San Francisco, CA (Duriez, Parezanovic, von Krbek, Cordier, Noack, Bonnet, Segond, Abel, Gautier, Aider, Raibaud, Cuvier, Stanislas, Debien, Mazellier, Kourta, Brunton)  
 2014, Nov. APS DFD, San Francisco, CA (Noack, Cordier, Parezanovic, von Krbek, Segond, Abel, Brunton)  
 2014, Aug. IEEE APWC, Aruba (Johnson, Brunton, Kutz, Kundtz)  
 2014, July Nonlinear Photonics, Barcelona, Spain (Kutz, Fu, Brunton)  
 2014, June Computational Science & Engineering (CompSE) Workshop, Aachen, Germany (Noack, Cordier, Duriez, Parezanovic, Delville, Bonnet, Segond, Abel, Morzynski, Brunton; **Keynote**)  
 2014, June 85th Annual Meeting of the International Association of Applied Mathematics and Mechanics, Erlangen Nürnberg, Germany (Segond, Abel, Parezanovic, Duriez, Noack, Cordier, Bonnet, Morzynski, Brunton)



2014, June 85th Annual Meeting of the International Association of Applied Mathematics and Mechanics, Erlangen Nürnberg, Germany (Abel, Segond, Duriez, Cordier, Parezanovic, Noack, Bonnet, Morzynski, Brunton)

2014, April SIAM Conference on Uncertainty Quantification (Noack, Duriez, Parezanovic, Laurentie, Schliegel, Kaiser, Cordier, Spohn, Bonnet, Morzynski, Segond, Abel, Brunton; *invited*)

2014, April SIAM Conference on Uncertainty Quantification (Kutz, Brunton; *invited*)

2013, Nov. APS DFD (Brunton, Tu, Kutz)

2013, Nov. APS DFD (Tu, Luchtenburg, Rowley, Brunton, Kutz)

2013, Nov. APS DFD (Dawson, Brunton, Rowley)

2013, Nov. APS DFD (Noack, Duriez, Cordier, Segond, Abel, Brunton, Morzynsky, Laurentie, Parezanovic, Bonnet)

2013, Sept. BIRS: Uncovering Transport Barriers in Geophysical Flows, Banff, Canada (Rowley, Brunton, Luchtenburg, Williams)

2012, Nov. APS DFD (Luchtenburg, Brunton, Rowley)

2012, Nov. APS DFD (Dawson, Brunton, Rowley)

2011, Nov. APS DFD (Brunton, Rowley)

2011, June 41<sup>st</sup> AIAA Fluid Dynamics Conference and Exhibit (Brunton, Rowley, Williams)

2011, Jan. 49<sup>th</sup> AIAA Aerospace Sciences Meeting and Exhibit (Brunton, Rowley)

2010, Nov. APS DFD (Brunton, Rowley)

2010, Jan. 48<sup>th</sup> AIAA Aerospace Sciences Meeting and Exhibit (Brunton, Rowley)

2009, Nov. APS DFD (Brunton, Rowley)

2009, June 34<sup>th</sup> IEEE Photovoltaic Specialist Conference, Philadelphia, PA (Brunton, Rowley, Kulkarni, Clarkson)

2009, April Thousand Islands Meeting, Gananoque Canada (Brunton, Rowley)

2009, Jan. 47<sup>th</sup> AIAA Aerospace Sciences Meeting and Exhibit (Brunton, Rowley)

2008, Nov. APS DFD (Brunton, Rowley)

2008, April Thousand Islands Meeting, Gananoque Canada (Brunton, Rowley)

2008, Jan. 46<sup>th</sup> AIAA ASM (Brunton, Rowley, Taira, Colonius, Collins, Williams)

## PATENTS GRANTED

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4. E. J. Seibel, C. Gong, **S. L. Brunton**, N. B. Erichson, L. Trutoiu, B. T. Schowengerdt, "System and Method for Retina Template Matching in Teleophthalmology,"  
US Patent Number 0015629, Jan. 20, 2022.
3. E. J. Seibel, **S. L. Brunton**, C. Gong, B. T. Schowengerdt, "Eye Tracking in Near-Eye Displays,"  
US Patent Number 0397254, Dec. 23, 2021
2. J. N. Kutz, **S. L. Brunton**, X. Fu, "Tuning multi-input complex dynamic systems using sparse representations of performance and extremum-seeking control,"  
US Patent Number 9972962, May 15, 2018.
1. J. N. Kutz, J. Grosek, **S. L. Brunton**, X. Fu, and S. Pendergrass "Using dynamic mode decomposition for real-time background/foreground separation in video,"  
US Patent Number 9674406, June 6, 2017.

## SOFTWARE

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13. PyKoopman, Developed by Eurika Kaiser. [<https://github.com/dynamicslab/PyKoopman/>]
12. deep-time, Developed by Frank Noe. [<https://github.com/deeptime-ml/deeptime/>]
11. PySensors, Developed by Brian de Silva. [<https://github.com/dynamicslab/PySensors/>]
10. PySINDy, Developed by Brian de Silva and Kathleen Champion. [<https://github.com/dynamicslab/PySINDy/>]
9. sindy-mpc, Developed by Eurika Kaiser. [<https://github.com/eurika-kaiser/SINDY-MPC/>]
8. kronic, Developed by Eurika Kaiser. [<https://github.com/eurika-kaiser/KRONIC/>]
7. deepkoopman, Developed by Bethany Lusch. [<https://github.com/BethanyL/DeepKoopman/>]
6. pde-find, Developed by Sam Rudy. [<https://github.com/snagcliffs/PDE-FIND/>]
5. sspor, Developed by Krithika Manohar. [[https://github.com/kmanohar/SSPOR\\_pub/](https://github.com/kmanohar/SSPOR_pub/)]
4. rsvd, Developed by Ben Erichson. [[github.com/erichson/rSVD/](https://github.com/erichson/rSVD/)]
3. eigenfish, Developed by Seth Pendergrass, funded by DOE. [[github.com/sethdp/eigenfish/](https://github.com/sethdp/eigenfish/)]
2. libssvd, Developed by Seth Pendergrass. [[github.com/sethdp/libssvd/](https://github.com/sethdp/libssvd/)]
1. python-control, led by Richard Murray. [[sourceforge.net/projects/python-control/](https://sourceforge.net/projects/python-control/)]

## SERVICE

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### Selected Service (UW)

Engineering machine learning hiring committee (chair), 2022–present  
Engineering AI education committee (chair), 2022–present  
eScience Executive Committee, 2022–present  
ME Chair search committee, 2020-2021  
ME Faculty hiring committee for QIST, 2020-2021  
eScience Education Committee (co-chair), 2017-2019  
ME Qualifying exam reform committee (chair), 2016-2019  
ME Faculty hiring committee, 2017-2019  
ME S&D committee, 2014-2019  
Wrote and evaluated ME Math Quals in Fall and Spring 2015, 2016  
Served on dozens of PhD thesis committees  
Mary Gates research scholarship application review, 2013  
UW Hyperloop Team: Faculty advisor, 2017  
UW Math Academy and State Academic Red Shirt (STARS): Faculty mentor.

### Selected Service (External)

Associate Director, NSF AI Institute, 2021–present  
Associate Editor, SIAM Scientific Computing (SISC), 2020–present  
Associate Editor, AIAA Journal, 2023–present  
Broad Educational Outreach through YouTube (see next page)  
NSF CAREER Panelist, 2021  
Guest Editor, special issue of Theor. & Comp. Fluid Dyn., invited by Tim Colonius, Senior Editor  
Associate Editor for ACC (American Control conference), invited by Belinda Batten, Editor  
On Advisory Committee for data analysis research PNNL  
Review research papers and proposals (>200)  
Outreach to underrepresented groups through STARS and Math Academy, 2014–present  
Event manager, New Jersey Science Olympiad, 2009–2010  
Session chair at conferences: APS DFD (2013, 2014), SIAM CSE (2013), SIAM DS (2013), SIAM CSE (2015), SIAM DS (2015), SIAM CT (2015), SIAM UQ (2016), APS DFD (2016), SIAM CSE (2017).

### Selected Organized Symposia, Workshops, and Summer Schools

VKI short course – *Machine learning for fluid dynamics*  
(w/ Alfonso-Mendez, Noack, Ianiro), [2020]  
IPAM Long Workshop – *Learning physics and the physics of learning*  
(w/ Clementi, Noe, Meila, Paesani, and Lecun), 3-month long program funded by NSF [2019]  
Physics Informed Machine Learning Workshop (w/ Kutz) [2019]  
Boeing Executive Data Science Workshop, Boeing Defense and Space, Washington DC, [2018]  
Sparse and Compressive Sensing, w/ B Brunton, State of the Art Review, Seattle WA, [2018]  
Boeing Executive Data Science Workshop, Boeing Commercial Aircraft, Seattle WA, [2018]  
(Requested by CEO Kevin McAllister and 35 senior executives)  
Rome Workshop & Summer School (w/ Kutz, Conti, Del Re, Gentilini, Marcucci) [2017]  
Seven SIAM Minisymposia [2013-2019]

### Memberships & Professional Societies

IEEE, *senior member*  
SIAM, *lifetime member*  
APS, *lifetime member*  
AIAA, *lifetime member, senior member*

## VIDEO OUTREACH ON YOUTUBE

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- > 240,000 Subscribers
- 13,000,000 Views
- Over 100 hours of educational content, including four courses, two bootcamps, and research abstracts



## MATHEMATICAL ART

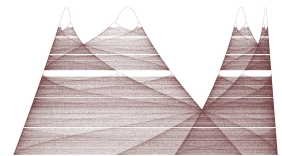
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"Mathematical Mountains,"

Princeton Art of Science Gallery, May 2011.

<http://crispme.com/art-of-science-2011/>

<http://butdoesitfloat.com/Mathematical-Mountains, 2011>



"Stirring Faces,"

Princeton Art of Science Gallery, May 2010.

<http://phys.org/news193333630.html>, May 2010.

Time Photo Essays, "Seeking Art in Science," June 2010.

<http://arxiv.org/abs/1210.3747>

APS DFD Gallery of Fluid Motion, 2012.

(<http://www.youtube.com/watch?v=l3rtloOyh3I>)

Princeton Alumni Weekly, "Science as art," April 2013.

