

Vishal Srivastava

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EDUCATION

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| University of Michigan, Ann Arbor <i>Ph.D. (Aerospace Engineering, Advisor: Prof. Karthik Duraisamy)</i> | May 2022 GPA: 4.0/4.0 |
| Indian Institute of Technology, Kanpur <i>B.Tech. (Aerospace Engineering)</i> | May 2016 CPI: 9.5/10.0 |

AWARDS

General Proficiency Medal (Convocation, 2016 - IIT Kanpur) for ranking first in Aerospace Engineering

RESEARCH INTERESTS

- Computational Aerodynamics
- Data-driven modeling
- Multidisciplinary Design & Optimization
- Scientific Machine Learning
- Numerical Methods
- Reduced-order/Surrogate modeling

EXPERIENCE

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| Analytical Mechanics Associates <i>Aerospace Engineer, Senior (Postdoctoral Researcher at NASA Langley)</i> <i>Engineer, Staff (Postdoctoral Researcher at NASA Langley)</i> | Hampton VA, USA Jan 2024 – Present Jun 2023 – Dec 2023 |
| National Institute of Aerospace <i>Research Engineer I (Postdoctoral Researcher at NASA Langley)</i> | Hampton VA, USA Jul 2022 – May 2023 |
| University of Michigan, Ann Arbor <i>Postdoctoral Research Scholar (at Prof. Karthik Duraisamy's group)</i> | Ann Arbor MI, USA Jun 2022 – Jul 2022 |

JOURNAL PUBLICATIONS

1. Srivastava, V., Sulzer, V., Mohtat, P., Siegel, J. B., & Duraisamy, K. (2023). **A non-intrusive approach for physics-constrained learning with application to fuel cell modeling.** *Computational Mechanics*, 72(2), 411-430.
2. Srivastava, V., & Duraisamy, K. (2023). **Generalizable physics-constrained modeling using learning and inference assisted by feature-space engineering.** *Physical Review Fluids*, 6(12), 124602.

CONFERENCE PROCEEDINGS

1. Choudhari, M. M., Beyak, E., Hildebrand, N., Li, F., Vogel, E., Srivastava, V., & Venkatachari, B. S. (2024, September). **Transition Modeling in Support of CFD Vision 2030 – Highlights of Recent Efforts at the NASA Langley Research Center.** In *Proceedings of the 34th Congress of the International Council of the Aeronautical Sciences, Florence, Italy*.
2. Srivastava, V., Rumsey, C. L., Coleman, G. N., & Wang, L. (2024). **On generalizably improving RANS predictions of flow separation and reattachment.** In *AIAA SCITECH 2024 Forum* (p. 2520).
3. Hildebrand, N., Srivastava, V., Zaki, T. A., & Choudhari, M. M. (2023, September). **DeepONet-Assisted Optimization of Surface Topography for Transition Delay in a Mach 4.5 Boundary Layer.** In *14th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements (ETMM14)* (No. 20230001917).
4. Hildebrand, N., Venkatachari, B. S., Srivastava, V., & Choudhari, M. M. (2023, September). **Recent Progress on RANS-Based Transition Model Verification.** In *14th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements (ETMM14)*.

5. Srivastava, V., & Duraisamy, K. (2022). **Towards a generalizable data-driven approach to predict separation-induced transition.** In *12th International Symposium on Turbulence and Shear Flow Phenomena (TSFP12)*.
6. Srivastava, V., & Duraisamy, K. (2018). **Aerodynamic design of aircraft engine nozzles with consideration of model-form uncertainties.** In *2018 AIAA Non-Deterministic Approaches Conference (p. 2175)*.

BOOK CHAPTERS

1. Duraisamy, K. & Srivastava, V. (2025). **Machine learning augmented modeling of turbulence.** In *Data Driven Analysis and Modeling of Turbulent Flows* (pp. 311-354). Academic Press.

TECHNICAL REPORTS

1. Srivastava, V., Rumsey, C. L., Coleman, G. N., & Wang, L. (2024). **Augmenting RANS Turbulence Models Guided by Field Inversion and Machine Learning.** (No. NASA/TM-20240012512).

INVITED TALKS/LECTURES

1. Srivastava, V., Rumsey, C. L., Coleman, G. N., & Wang, L. (2025). **Data-driven Improvements in RANS Predictions for Reattachment of Separated Flows.** *137th NIA CFD Seminar. National Institute of Aerospace.*
2. Srivastava, V. (2024). **An Introduction to Machine Learning for Turbulence Modeling.** *MAE298: Fundamentals of Turbulence Modeling (Course Instructor: Dr. Camli Badrya), UC Davis*
3. Srivastava, V., & Duraisamy, K. (2019). **Developing Data-Augmented Turbulence Models using Field Inversion and Machine Learning.** *120th NIA CFD Seminar. National Institute of Aerospace.*

SKILLS

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| Programming Languages: | C/C++, Python, FORTRAN, Julia, MATLAB |
| Machine Learning Packages: | PyTorch, Keras (Tensorflow) |
| Scientific Computing Libraries: | BLAS, LAPACK, PETSc, (Par)METIS, ADOL-C, CoDiPack |
| Parallel/Hybrid Computing Paradigms: | OpenMP, MPI, CUDA, Kokkos |