

Vikash Chaurasia

CONTACT INFORMATION Mathematics, Mechanics, and Materials Unit
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EDUCATION University of Houston - Texas, USA
Ph.D., Mechanical engineering, August, 2018
Advisors: Prof. Yi-Chao Chen and Prof. Eliot Fried
Indian Institute of Technology, Kanpur, India
B.Tech., Mechanical Engineering, June, 2010
M.S., Mechanical Engineering, August, 2012

PROFESSIONAL EXPERIENCE

- Design Engineer, General Electric, Bangalore India, 2012–2013
- Postdoc, Mathematics, Mechanics, and Materials Unit, OIST, September 2018–present

TEACHING EXPERIENCE Responsible for designing and checking assignments, conducting exams, occasionally teaching, and holding office hours:

- ME251–Engineering drawing and graphics, IIT Kanpur: Theory of general engineering design, conceptual design, embodiment design, designing to standard, basic sketching, machine drawing, dimensioning as per standards, fits and tolerances, machine elements, assembly drawing, geometrical modeling, and use of CAD software for modeling and animation.
- MECE 3400 - Intro To Mechanics, University of Houston: Statics of bodies, analysis of deformation and stress in elastic solids subject to bending and torsion, dynamics of particles, and mechanical vibrations.
- MECE 3369 - Solid Mechanics, University of Houston: Intermediate studies of the principles of stress analysis, buckling, energy methods, and the theories of failure; includes practical applications.

RESEARCH INTERESTS Continuum Mechanics, Unstretchable, flexible materials, Biophysics, Differential geometry, Numerical methods

SELECTED PUBLICATIONS

V. Chaurasia, E. Fried. Möbius bands obtained by isometrically deforming circular helicoids, *Journal of Elasticity*, 2023

V. Chaurasia, M.A. Kanso, E.Fried, and A.J. Giacomini. Coronavirus Peplomer Charge Heterogeneity, *Physics of Fluids*, 2023

M.A. Kanso, **V. Chaurasia**, E. Fried, and A.J. Giacomini. Peplomer bulb shape and coronavirus rotational diffusivity, *Physics of Fluids*, 2021

V. Chaurasia, Y.C. Chen, E. Fried. Interacting charged elastic loops on a sphere, *Journal of the Mechanics and Physics of Solids*, 2020

S. D. Janssens, **V. Chaurasia**, and E. Fried. Effect of a surface tension imbalance on a partly submerged cylinder, *Journal of Fluid Mechanics*, 2017

DATA SCIENCE
COURSES

Neural Networks and Deep Learning, Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization, Structuring Machine Learning Projects, Convolutional Neural Networks, and Sequence Models. Platform: Coursera, Instructor: *Andrew N.g.*
Data Structures and Algorithms Essentials using C++. Platform: Udemy, Instructor: *Prateek Narang.*

WORKSHOP
& CONFERENCES

1. Origami and Deployable Mechanisms - OIST, June, 2019
2. Discrete Differential Geometry - Short course, American Mathematical Society (AMS), January, 2018
3. CoMFoS17 International Conference on Mathematical Analysis of Continuum Mechanics, September, 2017
4. OIST Mini Symposium: Viscoelasticity and Dissipative Dynamics of Rods and Membranes, March, 2017
5. Society of Engineering Science (SES)-University of Maryland, October 2016
6. Physically-Based Modeling of Polyatomic Gases and Phase Transitions - OIST, Japan, July 2016
7. Non-local variational problems and PDEs, Pacific Institute of Mathematical Sciences -UBC, Vancouver, June 2016
8. Geometry, Elasticity and 2D fluctuations-Kavli Institute of Theoretical Physics, UC Santa Barbara, May 2016
9. Society of Engineering Science (SES)-Purdue University, October 2014
10. International Institute of Theoretical Sciences (ICTS) - IIT Kanpur, November 2011

AWARDS &
ACHIEVEMENTS

1. Travel award, Pacific Institute of Mathematical Sciences, 2016
2. International Exchange student to Okinawa Institute of Science and Technology (OIST), Japan, September 2015-2018
3. Kalsi scholarship, University of Houston, 2014
4. Presidential fellow, University of Houston, 2013
5. Texas Public Education Grant (TPEG) for International students, 2013, 2014

COURSES

Advanced Variational Calculus	Contact Mechanics
Asymptotic methods and Perturbation Theory	Continuum Mechanics
Hamiltonian Mechanics and Symplectic Algorithms	Advanced Mechanics of Solids
Fundamentals of Computing	Programming and Numerical Analysis
Dynamics and Vibration of Machinery	Theory of Machines
Finite Element Analysis	Mathematical Modelling
Linear Algebra	Real analysis

SKILLS

MATLAB, Python, C++, Blender, Javascript, Web based visualization