

EDUCATION	<b>University of Illinois Urbana-Champaign (UIUC)</b> <i>B.S. Engineering Mechanics, Secondary Field: Fluid Mechanics</i> <i>B.S. Mathematics, Concentration: Graduate Preparatory</i> Minor: <i>Computational Science and Engineering</i> Thesis: <i>Direct Numerical Simulation of Flows Over Wavy Walls at <math>Re_\lambda = 4780</math></i>	Aug 2015–Dec 2019 GPA: 3.66/4.00 (dual degree)
WORK	<i>Trainee, Core Compete</i>	Jan 2021 Onwards
EXPERIENCE	<b>Research Assistant, Carnegie Mellon University</b> - <u>Project</u> : Computational fluid dynamics and machine learning for inverse design - <u>Technologies</u> : Automatic differentiation, adjoint optimization, sensitivity analysis  <b>Research Aide, Argonne National Laboratory</b> - <u>Project</u> : (DOE <i>Distributed Wind</i> ) Numerical simulation of wind flow over buildings - <u>Summary</u> : Pre-processing and analysis of LES/RANS simulations on supercomputers - <u>Technologies</u> : OpenFOAM, NEK5000, Gmsh, overset/overlapping grids  <b>Research Aide, Argonne National Laboratory</b> - <u>Project</u> : (DOE <i>Offshore Wind</i> ) Direct Numerical Simulation of flows in windfarm-like terrains - <u>Summary</u> : Analyzed Reynolds stress budgets in canonical flows for turbulence model development - <u>Technologies</u> : High performance computing, NEK5000, Visit, Paraview  <b>Intern, National Center for Supercomputing Applications</b> - <u>Project</u> : Initial data generation of spacetime metric for gravitational wave simulations - <u>Summary</u> : Implemented numerical methods for solving nonlinear elliptic PDEs - <u>Technologies</u> : Einstein Toolkit, PETSc, FFTW, preconditioning, Scheduled Relaxation Jacobi  <b>Course Assistant, UIUC Mechanical Science &amp; Engineering</b> - Taught mechanical analysis using free-body-diagrams and control-volumes for <i>Statics</i> course - Created instructional demonstrations for engineering courses serving 2500 students annually	Sep 2020–Present Mar 2020–Sep 2020 May 2018–Jul 2018 Sep 2017–May 2018 Jan 2016–Dec 2017
RESEARCH WORK	(manuscript in preparation) <b>V. Puri</b> , R. Balakrishnan, A. Obabko, P. Fischer, <i>Turbulent Kinetic Energy Budgets of Flows Over Smooth and Rough Wavy Walls at <math>Re_\lambda = 4,780</math></i> (talk) <b>V. Puri</b> , R. Balakrishnan, <i>DNS of Flow Over Smooth and Rough Wavy Walls at <math>Re_\lambda = 4760</math></i> . American Physical Society Division of Fluid Dynamics 2020 (talk) <b>V. Puri</b> , R. Haas, E. Bentivegna, <i>Initial Data Generation Algorithms for ‘Einstein Toolkit’</i> . American Physical Society April Meeting 2018	
ACTIVITIES	<b>President, Society for Engineering Mechanics, UIUC</b> <b>Curriculum Development, Society for Engineering Mechanics, UIUC</b>	Aug 2018–May 2019 Oct 2016–May 2018
HONOURS	<b>Theoretical and Applied Mechanics Merit Award, UIUC</b> UIUC Mechanical Science and Engineering department award in honour of a student’s special contributions to Theoretical and Applied Mechanics, and Engineering Mechanics programs	2019
SKILLS	Programming    FORTRAN 77/90, C/C++, MATLAB, Julia, Python, Shell, $\text{\LaTeX}$ Design            Computer aided design, woodworking, soldering, photography	
PROJECTS	<a href="https://github.com/vpuri3">https://github.com/vpuri3</a> - /SEM.jl: Julia spectral element PDE solver with adjoint optimization - /Spec: MATLAB spectral element solver for the incompressible Navier–Stokes equations - /NekTools: FORTRAN 77 toolbox for turbulence budget computation in NEK5000 - /Notes: $\text{\LaTeX}$ notes on mechanics, real analysis, functional analysis - /IlliniHyperloop: (UIUC capstone) Passive cooling solution to dissipate 300 kJ heat from propulsion system of Hyperloop pod; fabricated by sponsor, Novark Technologies, Inc.	