

Vedant Puri

CONTACT INFORMATION	Email: vpuri3@illinois.edu Phone: +1-347-330-1343	LinkedIn: www.linkedin.com/in/vpuri3 Code: www.github.com/vpuri3
EDUCATION	University of Illinois Urbana-Champaign <i>B.S. Engineering Mechanics</i> , Secondary Field: <i>Fluid Mechanics</i> <i>B.S. Mathematics</i> (dual degree), Concentration: <i>Graduate Preparatory</i> Minor: <i>Computational Science and Engineering</i>	2015–2019 GPA: 3.65/4.00
WORK EXPERIENCE	Research Aide, Argonne National Laboratory <ul style="list-style-type: none">- Conducted Direct Numerical Simulations of wall-bounded flows in undulating geometries utilising up to 1024 compute nodes for 200 hours at Argonne Leadership Computing Facility supercomputers- Computed budget terms for the tensor Reynolds Stress Transport Equation to study mechanisms responsible for transport, production and dissipation of turbulent kinetic energy- Wrote post-processing setup to compute wall stresses, spatial averages and other turbulence statistics- Study extended till December 2019, counting for research credit at University of Illinois Intern, National Center for Supercomputing Applications <ul style="list-style-type: none">- Extended the novel Scheduled Relaxation Jacobi method for iteratively solving discrete linear systems associated with elliptic partial differential equations to nonlinear boundary value problems- Obtained preliminary results using above method for initial data of the spacetime metric associated with a binary black hole system, for simulations of the Einstein Field Equations- Wrote tensor-product based preconditioners for iteratively solving elliptic boundary value problems implemented using a discrete sine transform and PETSc, a numerical library Course Assistant, Introductory Statics, University of Illinois <ul style="list-style-type: none">- Conducted four weekly discussion sections where 32 students collaboratively worked on problem sets- Wrote problem sets, assisted with course logistics, and taught students to use computational tools	May–Jul 2018
RESEARCH WORK	(thesis) V. Puri , R. Balakrishnan, A. Obabko, P. Fischer, <i>Turbulent Kinetic Energy Budgets for Direct Numerical Simulations of Wall-bounded Flows in Undulating Geometries</i> (talk) V. Puri , R. Haas, E. Bentivegna, <i>Initial Data Generation Algorithms for Einstein Toolkit</i> . American Physical Society April Meeting, 2018	
COLLEGIATE INVOLVEMENT	President, Society for Engineering Mechanics <ul style="list-style-type: none">- Led an organisation of 30 students to complete projects such as Chocolate 3D Printer, and S'mores Machine for annual Engineering Open House- Worked with department of Mechanical Science and Engineering to augment student participation in Engineering Mechanics program through tutorials, advising sessions, company information sessions, workshops, social events, and annual department research fair- Facilitated in recruiting students to department of Mechanical Science and Engineering Curriculum Development, Society for Engineering Mechanics <ul style="list-style-type: none">- Led a student group to design and build instructional demonstrations such as Ackermann steering system, zero-force trusses for Theoretical and Applied Mechanics (TAM) courses serving 2500 students- Student advisor to Strategic Instructional Innovations Program group for three TAM courses	Aug 2018–May 2019
HONOURS AND AWARDS	Theoretical and Applied Mechanics Merit Award Department of Mechanical Science and Engineering award given in honour of a student's special contributions to the Engineering Mechanics program	2019
TECHNICAL SKILLS	Programming Fortran, C, C++, MATLAB, Python, Shell Miscellaneous L ^A T _E X Typesetting, Computer Aided Design, woodworking, soldering, photography	
PROJECTS	<ul style="list-style-type: none">- University of Illinois Capstone Project: Passive cooling solution to absorb up to 300 kJ of heat from propulsion system of Illini Hyperloop; fabrication handled by project sponsor, Novark Technologies, Inc.- MATLAB numerical PDE codes developed over several courses: Spectral, Spectral Element Methods for incompressible Navier-Stokes, convection-diffusion type problems (www.github.com/vpuri3/spec)	

Updated: December 2019