Sruti Chigullapalli

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EDUCATION

PhD	Purdue University, Aeronautics and Astronautics Engineering Major: Aerodynamics, Minor: Propulsion	Aug 2011
M.S.	Purdue University, Aeronautics and Astronautics Engineering Specialization: Computational Science and Engineering, GPA: 3.86/4.0	May 2008
B.Tech.	Indian Institute of Technology Madras, Aerospace Engineering Minor: Material Science, GPA: 8.49/10.0	June 2006

RESEARCH INTERESTS

Computational Fluid Dynamics, Numerical Methods, Heat transfer, Parallel Computing

RESEARCH EXPERIENCE

Research Assistant, Purdue University, *School of AAE* Aug 08 – Current
I extended the parallel 2 D solver that I developed during my Masters at Purdue to make it more user friendly. Currently, I am working on the simulation of 2D viscous shock tube problem and also hypersonic flow over a flat plate.

JEOM Summer Intern, Arctic Region Supercomputing Center, *UAF, Alaska* June 08 – Aug.08
Assessed and evaluated the performance of numerical weather predictions from various model configurations of WRF model over interior Alaska.

Research Assistant, Purdue University, *School of AAE* June 07 – May 08
Conducted numerical simulations of stationary shock wave in one dimension using a discrete ordinate method on the Boltzmann model equations (BGK and ESBGK) and extended it to the unsteady Riemann, or shock tube problem. I then developed the parallel version of the 2 D solver on a structured mesh and higher order WENO scheme. The solver was also used by my research group to develop a solver for Nanoscale heat transfer problems with a solid-liquid interface.

Department of Aerospace Engineering, IIT Madras Aug.05 – May 06
Experimentally investigated the structure of a low density free jet by glow discharge visualization and compared the normal pressure with the results from DS2V, a visual DSMC software.

Summer Intern Fellow, Indian Institute of Science, *Bangalore, India* June 05 – Aug.05
Experimented with laser, dyes and ultraviolet light for visualization of attached wakes and vortex shedding behind elliptical cylinders in a Soap Film Tunnel.

PUBLICATIONS

- "Non-Equilibrium Flow Modeling Using High-Order Schemes for the Boltzmann Model Equations", S. Chigullapalli, V. Ayyaswamy, A. Alexeenko, and M.S. Ivanov, AIAA Paper 2008-3929, 40th Thermophysics Conference, Seattle, Washington, June 23-26, 2008.

- " Modeling of Viscous Shock Tube Using ES-BGK Model Kinetic Equations ", S. Chigullapalli, V. Ayyaswamy, A. Alexeenko, and M.S. Ivanov, AIAA-2009-1317, 47th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, Florida

TEACHING EXPERIENCE

School of AAE, Purdue University — Aug. 06 – May 07
Supported professor in AAE333 and AAE333L (Fluid Mechanics and Laboratory)
Designed and graded fluid mechanics and flight dynamics assignments. Developed GUI solvers using Matlab to help students solve some aerodynamics problems in the assignments. Conducted and supervised fluid mechanics experiments and graded lab reports.

POSITIONS HELD

Vice-President of CompSEM, a student chapter of SIAM at Purdue — Aug 08 – Current
Secretary of CompSEM, a student chapter of SIAM at Purdue — Aug 07 – May 08
Coordinator for Aero modeling hobby club, IIT Madras — Aug 05 – May 06

AWARDS AND HONORS

Young Engineers Fellowship Program 2005, Indian Institute of Science.
Got selected for the Indian National Mathematics Olympiad 2002.
Second place in Andhra Pradesh State Mathematics Olympiad (APAMT) 2001.

PROGRAMMING SKILLS

Languages: C, C++, Fortran, Python, Matlab, MPI & Open MP
Software: Mathematica, Fluent, Gambit, Gridgen, Autocad, Tecplot, DS2V

RELEVANT COURSES

Aerodynamics: Introduction to Fluid Mechanics, Introduction to Computational Fluid Dynamics, Computational Aerodynamics, Molecular Gas Dynamics, Turbulent Flows and Their Prediction, Laminar- turbulence transition.

CS&E: Introduction to Computational Science, High Performance Computing and Grid Computing, Numerical Methods in Mechanical Engineering.

Design: Aircraft Design, Design Project, Detailed Design and Manufacture, Finite Element Analysis, Matrix Methods in Structural Analysis.

Nanoscale systems: Computational methods for Nanoscale Thermal Transport.

ADDITIONAL SKILLS

Completed basic courses in French and German.
Carnatic (an Indian classical music) vocalist.
Member of Bujinkan (a Japanese martial arts group) at Purdue
Hobbies : playing guitar, volleyball, swimming, hip hop style of dancing.
Was the Garden Secretary of the hostel at IIT Madras for 2003-04.