

Ramesh Pankajakshan

Education

PhD, Computational Engineering, Mississippi State University, 1997
MS, Mechanical Engineering, Mississippi State University, 1993
B.Tech, Mechanical Engineering, Indian Institute of Technology, Madras, 1991

Employment

Associate Research Professor, SimCenter: National Center for Computational Engineering, University of Tennessee at Chattanooga, Sep. 2002 - Present
Associate Research Professor, SimCenter, MSU/NSF Engineering Research Center, Jul.2002 - Sep. 2002
Assistant Research Professor, SimCenter, MSU/NSF Engineering Research Center, Jun.2001-Jun. 2002
Research Engineer I, CFD Lab, MSU/NSF Engineering Research Center, Jan.1999-Jun. 2001
Research Engineer I (Part Time), CFD Lab, MSU/NSF Engineering Research Center, Jul.1998-Jan. 1999
Research Engineer I, CFD Lab, MSU/NSF Engineering Research Center, Jun.1998-Jul. 1998
Post-Doctoral Fellow, CFD Lab, MSU/NSF Engineering Research Center, Sep.1997-Jun. 1998
Graduate Research Assistant, CFD Lab, MSU/NSF Engineering Research Center, Aug. 1991 – Aug. 1997
Undergraduate student worker, Indian Institute of Technology, Madras, India, Aug. 1990 - Apr. 1991

University Service

Major professor for 2 master's degree students and 1 doctoral degree student
Committee member for 2 master's degree students

Academic Specialties

Unsteady Viscous Flow Applications
Parallel Algorithms
Scientific Computing
Computational Design
Agent Based Modeling

Professional Memberships

American Institute of Aeronautics and Astronautics

Recent Publications and Presentations

Publications

1. Pankajakshan R., Mitchell B., and L. Whitfield D.L., "Full-Scale Simulations of Drag Reduction Devices for Class 8 Trucks," *Aerodynamics of Heavy Vehicles II: Trucks, Buses and Trains*. Springer Berlin. Pages 339-348. December 2008.
2. Pankajakshan, R., Sreenivas, K., Mitchell, B.J., and Whitfield, D.L., "CFD Simulations of Class 8 Trucks," 2007-01-4293, SAE 2007 Commercial Vehicle Engineering Congress & Exhibition, October 2007.
3. Pankajakshan, R., Mitchell, B.J., and Taylor, L.K., "Simulation of Unsteady Two-Phase Flows using a Parallel Eulerian-Lagrangian Approach," AIAA-2007-0340, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 8-11, 2007
4. Almeida, T.G., Walker, D.T., Leighton, R.I., Alajbegovic, A., Pankajakshan, R., Taylor, L.K., Whitfield, D.L., Ceccio, S.L., "A Reynolds-Averaged Model for the Prediction of Friction Drag Reduction by Polymer Additives," 26th Symposium on Naval Hydrodynamics, Rome Italy, September. 17-22, 2006.

5. K. Sreenivas, R. Pankajakshan, S. Nichols B. Mitchell, L. Taylor, D. Whitfield, "Aerodynamic Simulation of Heavy Trucks with Rotating Wheels," AIAA-2006-1394, 44th AIAA Aerospace Sciences Meeting and Exhibit, January 2006.
6. Taylor, L. K., Pankajakshan, R., Briley, W. R., and Whitfield, D. L., "Scalable Parallel Implicit Algorithm for Advanced Turbulence Closures," AIAA Paper No. 2005-0876, 43rd Aerospace Sciences Meeting and Exhibit, Reno, NV, January 2005.
7. McCallen, R., Salari, K., Ortega, J. M., Castellucci, P. J., Eastwood, C. D., Dechant, L., Hassan, B., Pointer, W. D., Browand, F., Leonard, A., Rubel, M. T., Ross, J. C., Heineck, J. T., Walker, S. M., Storms, B., Roy, C., Whitfield, D., Pankajakshan, R., Taylor, L. K., Sreenivas, K., Englar, R. J., "DOE's Effort to Reduce Truck Aerodynamic Drag Through Joint Experiments and Computations," SAE Paper 2005-01-3511, 2005 SAE Commercial Vehicle Engineering Conference, Rosemont, IL, November 2005.
8. Pankajakshan, R., Taylor, L.K., Briley, W.R., and Whitfield, D.L., "A Parallel Multiblock Multigrid Solver for Arbitrary Mach Number Applications," 41st Aerospace Sciences Meeting & Exhibit, Reno, NV, January, 2003.
9. Pankajakshan, R., Remotigue, M.G., Taylor, L.K., Jiang, M. Briley, W.R., and Whitfield, D.L., "Validation of Control-Surface Induced Submarine Maneuvering Simulations using UNCLE," 24th Symposium on Naval Hydrodynamics, Fukuoka, Japan, July 8-13, 2002.
10. Newman III, J.C., Pankajakshan, R., Whitfield, D.L., and Taylor, L.K., "Computational Design Using RANS," 24th Symposium on Naval Hydrodynamics, Fukuoka, Japan, July 8-13, 2002.
11. Remotigue, M.G., Pankajakshan, R., Jiang, M., Taylor, L.K., Briley, W.R., and Whitfield, D.L., "Dynamic Grid Generation for Simulation of Submarine Maneuvers: Part II," 8th International Conference on Numerical Grid Generation in Computational Field Simulations, Honolulu, Hawaii, 2002.
12. Remotigue, M.G., Pankajakshan, R., Jiang, M., Taylor, L.K., and Whitfield, D.L., "Validation of a RANS Solver on Capturing Blade-tip Vortices of a Marine Propeller," Finite Volumes for Complex Applications III, Edited by R. Herbin and D. Kroner., Hermes Penton Science, 2002.
13. Computational Simulation and Design Center Staff, "Computational Engineering Research Supporting the Analysis and Design of Marine and Aerospace Vehicles," MSU Report, MSSU-COE-ERC-02-09, May 2002.
14. Pankajakshan, R., Taylor, L. K., Sheng, C., Jiang, M. J., Briley, W. R., and D. L. Whitfield., "Parallel Efficiency in Implicit Multiblock, Multigrid Simulations, with Application to Submarine Maneuvering," AIAA Paper 2001-1093, 39th Aerospace Sciences Meeting Conference and Exhibit, Reno, NV, January, 2001.
15. Beddhu, M., Pankajakshan, R., Jiang, M. Y., Taylor, L. K., Briley, W. R. and Whitfield, D. L., "Computation of Nonlinear Turbulent Free Surface Flows using the Parallel UNCLE code," 23rd Symposium on Naval Ship Hydrodynamics, Val de Reuil, France, September 17-22, 2000.
16. Bourgoyne, D., Ceccio, S., Dowling, D., (University of Michigan, USA), Brewer, W., Jessup, S., Park, J., (Naval Surface Warfare Center, Carderock Division, USA). Pankajakshan, R., (Mississippi State University, USA), "Hydrofoil Turbulent Boundary Layer Separation at High Reynolds Numbers," 23rd Symposium on Naval Ship Hydrodynamics, Val de Reuil, France, September 17-22, 2000.
17. Jiang, M., Pankajakshan, R., Remotigue, M.G., and Taylor, L.K., "Dynamic Grid Generation for the Simulation of Submarine Maneuvers," *Numerical Grid Generation in Computational Field Simulations*, Proceedings of the 7th International Conference held at Whistler, British Columbia, September, 2000.
18. Beddhu, M., Pankajakshan, R., Jiang, M. Y., Taylor, L. K., Remotigue, M. G., Briley, W. R. and Whitfield, D. L., "Computation and Evaluation of CFD Results for Practical Ship Hull Forms," Presented at Gothenburg 2000 : A Workshop on CFD in Ship Hydrodynamics held in Gothenburg, Sweden, Sept. 14-16, 2000.
19. Pankajakshan, R., Taylor, L.K., Jiang, M., Remotigue, M.G., Briley, W.R., and Whitfield, D.L., "Parallel Simulations for Control-Surface Induced Submarine Maneuvers," Proc., 38th Aerospace Sciences Meeting & Exhibit, AIAA Paper No. 2000-0962, Reno, NV, January 2000.
20. Pankajakshan, R., Taylor, L. K., Sheng, C., Briley, W. R., and D. L. Whitfield, "Scalable Parallel Implicit Multigrid Solution of Unsteady Incompressible Flows," *Frontiers of Computational Fluid Dynamics 2000*, Edited by D. A. Caughey and M. M. Hafez, World Scientific Publishing Company PTE. LTD., Singapore, 2000.
21. Arabshahi, A., Beddhu, M., Briley, W.R., Chen, J.P., Gaither, A., Gaither, K., Janus, J.M., Jiang, M., Marcum, D., McGinley, J., Pankajakshan, R., Remotigue, M., Sheng, C., Sreenivas, K., Taylor, L.K., and Whitfield, D.L., "A Perspective on Naval Hydrodynamic Flow Simulations," Presented at the 22nd Symposium on Naval Hydrodynamics, Washington, D.C., August 9-14, 1998.
22. Taylor, L.K., Pankajakshan, R., Jiang, M., Sheng, C., Briley, W.R., Whitfield, D.L., Davoudzadeh, F., Boger, D.A., Gibeling, H.J., Gorski, J., Haussling, H., Coleman, R., and Buley G., "Large-Scale Simulations for Maneuvering Submarines and Propulsors," AIAA Paper No. 98-2930, 29th AIAA Plasmadynamics and Lasers Conference, Albuquerque, NM, June 15-18, 1998.

23. Boger, D.A., Davoudzadeh, F., Dreyer, J.J., McDonald, H., Schott, C.G., Zierke, W.C., Arabshahi, A., Briley, W.R., Busby, J.A., Chen, J.P., Jiang, M.Y., Jonnalagadda, R., McGinley, J., Pankajakshan, R., Sheng, C., Stokes, M.L., Taylor, L.K. and Whitfield, D.L., "A Physics-Based Means of Computing the Flow Around a Maneuvering Underwater Vehicle," Technical Report No. TR 97-002, Applied Research Laboratory, Penn. State University, January 1997.
24. Parallel Solution of Unsteady Incompressible Viscous Flows using Multiblock Structured Grids, Ph.D. Dissertation, Mississippi State University, Dec. 1997.
25. Pankajakshan, R., and Briley, W.R., "Parallel Solution of Viscous Incompressible Flow on Multi-Block Structured Grids using MPI," Parallel Computational Fluid Dynamics: Implementations and Results Using Parallel Computers, Elsevier Publications, 1995.
26. Arabshahi, A., and Pankajakshan, R., "Propulsion/airframe Interference for Ducted Propfan Engines with Ground Effect," NASA-CR-197110, November 1994.
27. Pankajakshan, R., Arabshahi, A., and Whitfield, D. L., "Turbofan Flowfield Simulation Using Euler Equations with Body Forces," AIAA Paper 93-1978, June 1993.
28. Turbofan Flowfield Simulation using Euler Equations with Body Forces, M. S. Thesis, Mississippi State University, May, 1993.

Presentations

1. "Computation of RCM Maneuvers using the UNCLE code," presented at the Naval Board meeting, Mississippi State University, June 5, 2001.
2. "Computation of Freesurface Flows using UNCLE," presented at the short course for Naval users from the Naval Surface Warfare Center at Carderock. Mississippi State University, December 11-13, 2000.
3. "Computation of RCM Maneuvers using the UNCLE code," presented at the Naval Board meeting, Mississippi State University, November 13, 2000.
4. "UNCLE: Unsteady Computation of Field Equations," presented at the Engineering Research Center Industrial Affiliates Meeting, October 10, 2000.
5. "Incompressible Flow Applications with Two-equation Turbulence Models," presented at the ONR Turbulence Review, October 1998.