

Dudley Stephen Nichols, III

Education

PhD, Aerospace Engineering, Mississippi State University, 2002
MS, Aerospace Engineering, Mississippi State University, May 1998
Minor, Mechanical Engineering, Mississippi State University
BS, Aerospace Engineering, United States Naval Academy, May 1992

Employment

Associate Research Professor, SimCenter: National Center for Computational Engineering, University of Tennessee at Chattanooga, 2008-Present
Assistant Research Professor, SimCenter: National Center for Computational Engineering, University of Tennessee at Chattanooga, 2002-2008
Research Associate, SimCenter, MSU-NSF Engineering Research Center, Mississippi State University, Mississippi State University, 1999-2002
Aerospace Engineer, Naval Surface Warfare Center Dahlgren Division, 1999
Project Engineer, U. S. Marine Corps Lightweight Laser Rangefinder Designator Program, 1998-1999
Graduate Research Assistant, SimCenter, MSU-NSF Engineering Research Center, Mississippi State University, 1994-1998

Military Experience

Ensign, United States Navy, 1992-1994

Academic Service

Tutored 26 undergraduate students, Physics, United States Naval Academy
Advise

Academic Specialties

Unsteady Free-Surface Flow
Surface-Ship Hydrodynamics and Maneuvering
Turbulence Modeling
Climate Modeling

Reviewer

Journal of Ship Research
Computers & Fluids
Journal of Fluids Engineering

Recent Publications

1. M. Hajjawi, L. Taylor, and S. Nichols, "Assessment and Modification for Reynolds Stress Transport Turbulence Model Flow Prediction," AIAA-2008-568, 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 7-10, 2008.
2. M. Hajjawi, L. Taylor, and S. Nichols, "Assessment of Filtered-Based RANS Turbulence Model For Unsteady Separated Flow Prediction," AIAA-2008-670, 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 7-10, 2008.
3. S. Nichols, K. Sreenivas, S. Karman and B. Mitchell, "Turbulence Modeling for Highly Separated Flows," AIAA-2007-1407, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 8-11, 2007.

4. K. Sreenivas, B. Mitchell, S. Sawyer, S. Karman, S. Nichols, and D. Hyams, "Computational Prediction of Forces and Moments for Transport Aircraft," AIAA-2007-1088, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 8-11, 2007.
5. K. Sreenivas, S. Nichols, D. Hyams, B. Mitchell, S. Sawyer, and D. Whitfield, "Computational Simulation of Heavy Trucks," AIAA-2007-1087, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 8-11, 2007.
6. A. Arabshahi, K. Sreenivas, S. Nichols, B. Mitchell, L. Taylor and D. Whitfield, "Computational Analysis of Turbulent Internal Flow in Ballistic Rocket Motors," AIAA-2007-1449, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 8-11, 2007.
7. Wilson, R.V., Nichols, D.S., Mitchell, B., Karman, S.L., Hyams, D.G., Sreenivas, K., Taylor, L.K., Briley, W.R., and Whitfield, D.L., "Application of an Unstructured Free Surface Flow Solver for High Speed Transom Stern Ships," 26th Symposium on Naval Hydrodynamics, Rome Italy, September. 17-22, 2006.
8. S. Nichols, B. Mitchell, K. Sreenivas, L. Taylor, D. Whitfield and R. Briley, "Aerosol Propagation in an Urban Environment," AIAA 2006-3726, June 2006.
9. S. Nichols, D. Hyams, K. Sreenivas, B. Mitchell, L. Taylor, D. Whitfield, "An Unstructured Incompressible Multi-Phase Solution Algorithm", AIAA-2006-1290, 44th AIAA Aerospace Sciences Meeting and Exhibit, January 2006.
10. 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.
11. Sreenivas, K., Hyams, D., Nichols, S., Mitchell, B., Taylor, L., Briley, R., Whitfield, D., *Development of an Unstructured Parallel Flow Solver for Arbitrary Mach Numbers*, 43rd AIAA Aerospace Sciences Meeting and Exhibit, AIAA 2005-0325, January 2005
12. Nichols, D. S. III, *Development of a Free Surface Method Utilizing an Incompressible Multi-Phase Algorithm to Study the flow about Surface Ships and Underwater Vehicles*, Doctoral Thesis, Mississippi State University, August 2002
13. Hyams, D.G., Sreenivas, K., Sheng, C., Nichols, S., Taylor, L.K., Briley, W.R., and Whitfield, D.L., *An Unstructured Multielement Solution Algorithm for Complex Geometry Hydrodynamic Simulations*, 23rd Symposium on Naval Hydrodynamics, Val de Reuil, France, September 2000.
14. Beddhu, M., Nichols, S., Jiang, M.Y., Sheng, C., Whitfield, D.L., and Taylor, L.K., *Comparison of EFD and CFD Results of the Free Surface Flow Field about the Series 60 $C_B = 0.6$ Ship*, 25th American Towing Conference, Iowa City, IA, Sept. 1998
15. Nichols, D. S. III, *Calculation of Free Surface Wave Forms and Flow Field about the Series 60 $C_B = 0.6$ Ship*, Masters Thesis, Mississippi State University, May 1998

External Funding

CoE Appl. Comp. Sci. Engr. Simulations With Gravity On Multi-Element Unstructured Topologies (PI: Stephen Nichols)	\$89,720	2009-2010
CoE Appl. Comp. Sci. Engr. Atmospheric Wind Modeling for Regional Simulations (PI: Stephen Nichols)	\$42,125	2008-2009
CoE Appl. Comp. Sci. Engr. Turbulence Modeling for Multi-Speed Flows (PI: Stephen Nichols)	\$77,000	2007-2009
CoE Appl. Comp. Sci. Engr. Advanced Turbulence Modeling for Unstructured Topologies (PI: Stephen Nichols)	\$166,000	2005-2007
Department of Energy Atmospheric Dispersion at Spatial Resolutions Below Mesoscale (Co-Investigator, Critical Technology Contributor: Advanced Turbulence Modeling for Unstructured Topologies)	\$579,000	2005-2008

Office of Naval Research Unstructured Viscous Free Surface Solver for Predicting Hydrodynamic Performance of High Speed Ships (Co-Investigator, Critical Technology Contributor: Free-Surface and Advanced Turbulence Modeling for Unstructured Topologies)	\$1,056,000	2006-2009
Office of Naval Research (DARPA) Simulation and Analysis of Proposed Underwater Vehicles (Co-Investigator, Critical Technology Contributor: Advanced Turbulence Modeling for Unstructured Topologies)	\$150,000	2004
ATA/AEDC Engine Inlet Distortion Simulations (Co-Investigator, Critical Technology Contributor: Advanced Turbulence Modeling for Unstructured Topologies)	\$40,000	2004
Department of Energy Global Climate Change (Co-Investigator, Critical Technology Contributor: Advanced Turbulence Modeling)	\$725,000	2004-2007
Barber-Nichols, Inc. CFD Tool Validation for Upper Stage, Turbo-Pump, Design (Co-Investigator, Critical Technology Contributor: Advanced Turbulence Modeling)	\$178,000	2005
ITT Industries, Inc. Post-Engagement Ground Effects Model (PEGEM) Independent Validation & Verification (Co-Investigator, Critical Technology Contributor: Unstructured Grid Flow Simulations)	\$100,000	2005
Jackson & Tull/Air Force Research Lab Turbomachinery CFD Analysis (Co-Investigator, Critical Technology Contributor: Advanced Turbulence Modeling)	\$120,000	2007