

Michael Andrew Park

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- EDUCATION ▷ **Massachusetts Institute of Technology**, Cambridge, MA.
Ph.D. in Computational Fluid Dynamics, Department of Aeronautics and Astronautics,
GPA 4.66 of 5.00, September 2008.
- ▷ **NASA Langley / George Washington University**, Hampton, VA.
Joint Institute for the Advancement of Flight Sciences M.S., Aeronautical Engineering,
GPA 3.28 of 4.00, August 2000.
- ▷ **University of Southern California**, Los Angeles, CA.
B.S., Aerospace Engineering, GPA 3.48 of 4.00, May 1998.
- RESEARCH INTERESTS Computational Fluid Dynamics (CFD) flow and adjoint solver development for analysis,
solution adaptation, and design; anisotropic grid adaptation mechanics; parallel computing;
software development processes.
- SKILLS C, Fortran, MATLAB, Ruby, Git, Subversion, GNU Autotools, L^AT_EX.
- WORK EXPERIENCE ▷ **Research Scientist**, Langley Computational AeroSciences Branch; September 2000–
present. Implemented a three-dimensional output (adjoint) based error estimation and
adaptation scheme in FUN3D.¹ Developed a parallel, anisotropic grid adaptation library
called from FUN3D (includes dynamic partition load balancing). The library is written in
C, developed test-first, and contains a direct link to CAD geometry. Also developed the
cut-cell capability in FUN3D. Developed automated build and test procedure for FUN3D.
Implemented Message Passing Interface (MPI) communication in FUN3D. Contributed to
FUnit (FORTRAN 95 unit testing framework) Development. Participated in the AIAA
Supersonic Shock-Boundary Layer Interaction and High Lift Prediction Workshops with
output-adaptive grid methods. Applications in sonic boom prediction, engine plumes,
and ground vehicles. Supported numerous FUN3D users in government, industry, and
academia.
- ▷ **Research Assistant** Langley Multidisciplinary Optimization Branch; September 1998–
August 2000. Applied the ADIFOR (Automatic Differentiation in FORTRAN) tool to
CFL3D, a FORTRAN, structured grid, Navier-Stokes CFD code to compute aircraft sta-
bility and control derivatives.
- ▷ **Co-op Flight Test Engineer** NASA Dryden Flight Research Center Aerodynamics,
Propulsion, and Controls Branches; September 1995–August 1997. Improved angle of
attack and side slip determination during departures for F-18 HARV (High Alpha Research
Vehicle) flight test data. Supported the Linear Aerospike SR-71 Experiment (LASRE) with
supersonic wind tunnel testing and computational potential flow solutions of possible test
configurations for stability and control data. Programmed a graphical modern control law
design tool in MATLAB. Used the Hyper-X hypersonic free flyer as a control law design
example and explored alternative trajectories for booster and free flyer separation studies.
- REFERENCES Available on request.
- PUBLICATIONS

¹<http://fun3d.larc.nasa.gov>, an unstructured CFD simulation tool with adjoint solver capable of
analysis, design, and grid adaptation across all flow speed regimes