Justin Gray

Experience

NASA Glenn Research Center -- Cleveland, OH
OpenMDAO Development Team Lead, 2010 - Present

- Project lead managing 11 person team for OpenMDAO.org project, Python based open-source MDAO Framework
- Developed wrappers for multiple CFD, FEA, and systems analysis models including NPSS, NCC, and FLOPS
- Implemented MDAO architecture test platform and benchmarked state of the art optimization techniques
- Implemented Efficient Global Optimization and demonstrated an order of magnitude computational cost reduction for aircraft optimization

Aerospace Sciences MDAO Sub-Project Planning Team Lead -- June - November 2012

- Developed plan for 20 person, 1.5 million dollar research effort

Turbine Engine Systems Analyst, 2004 - 2010

- Lead Software Designer for Object-oriented Turbomachinery Analysis Tool (OTAC), applying object oriented programming paradigms to turbomachinery analysis, 2009 - 2010

AIAA Multidisciplinary Optimization Technical Committe, 2013 - Present:

- Developed the latest MDO test suite built around OpenMDAO Framework.

Publications

J. S. Gray, T. A. Hearn, K. T. Moore, J. Hwang, J. Martins, and A. Ning, "Automatic evaluation of multidisciplinary derivatives using a graph-based problem formulation in openmdao," in *15th aiaa/issmo multidisciplinary analysis and optimization conference*, 2014.

J. S. Gray, K. T. Moore, T. A. Hearn, and B. A. Naylor, "A Standard Platform for Testing and Comparison of MDAO Architectures," *AIAA Journal* 2013, Vol 51, iss. 5, pp. 743-760

D. Pate, J. Gray, and B. German, "A graph theoretic approach to problem formulation for multidisciplinary design analysis and optimization," *Structural and multidisciplinary optimization*, vol. 51, iss. 5, pp. 743-760, 2013.

C. M. Heath and J. S. Gray, "OpenMDAO: Framework for Flexible Multidisciplinary Design, Analysis and Optimization Methods," in *8th AIAA Multidisciplinary Design Optimization Specialist Conference*, Honolulu, Hawaii, 2012, pp. 1-13.

J. S. Gray, K. T. Moore, and B. A. Naylor, "OPENMDAO: An Open Source Framework for Multidisciplinary Analysis and Optimization," in 13th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Fort Worth, TX, AIAA, AIAA-2010-9101, Fort Worth, Texas, 2010.

K. T. Moore, B. A. Naylor, and J. S. Gray, "The Development of an Open-Source Framework for Multidisciplinary Analysis and Optimization," in 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, Canada, 2008.

Education

Case Western Reserve University, Graduated 2012, MS in Computer Science. 4.0 GPA
Georgia Institute of Technology, Graduated 2007, BS in Aerospace Engineering. 3.9 GPA