CV of Karthikeyan Duraisamy

PRIOR EXPERIENCE

- **Assistant Professor (Consulting)**
  Department of Aeronautics/Astronautics, Stanford University
  Stanford, CA
  June 2009-Aug 2013
- **Lecturer of Aerospace Engineering**
  Department of Aerospace Engineering, University of Glasgow
  Glasgow, UK
  Dec 2006-May 2009

RESEARCH INTERESTS

- Numerical Methods
- Aerodynamics
- Rotorcraft Aeromechanics
- Wind and Gas turbine applications
- High Speed Flows
- Vortical Flows
- Uncertainty Quantification
- High Performance Computing
- Turbulence modeling and simulation
- Adjoint-based methods and Optimization

TEACHING

- Aerodynamics and Aeroacoustics of Rotorcraft, (Stanford University, Graduate-level)
- Uncertainty Quantification, (Stanford University, Co-teaching, Graduate-level)
- Computational Fluid Dynamics, (Offered free on-line via symynd.com, UG-level)
- High Speed Aerodynamics, (University of Glasgow, UG-level)
- Introduction to Computational Fluid Dynamics, (University of Glasgow, UG-level)
- Advanced Computational Fluid Dynamics, (University of Glasgow, Graduate-level)
- Introduction to Compressible Flow, (University of Maryland, UG-level)

RESEARCH ADVISING

Completed

- Davide Ambesi, Masters, Title: *Insect wing aerodynamics*, Univ. of Glasgow, Sep 2008.
- Eckhard Dietze, Masters, Title: *Numerical investigations of evolution and interactions of vortex rings*, Univ. of Glasgow, Sep 2009.
- Pedro Gonzalez, Masters, Title: *Sub-grid scale closures for the vorticity transport equations*, Univ. of Glasgow, Sep 2009.
- Alasdair Thom, PhD, Title: *Aerodynamics and aeroacoustics of vortex-surface interactions*," Univ. of Glasgow, Oct 2011.
- Thomas Taylor, PhD (Co-advised), Title: *A Hybrid Adjoint Approach for Systems of Arbitrarily Complex Partial Differential Equations*, Stanford University, Sep 2013.

On-going

- Anand Pratap Singh, PhD, University of Michigan, Sep 2013-present.
- Ze Jia Zhang, MS/PhD, University of Michigan, Sep 2013-present.
- Alexander Pankonien, PhD (Co-advising), University of Michigan, Sep 2013-present.
- Aniket Aranake, PhD, Stanford University, Sep 2011-present.
- Alejandro Campos, PhD, Stanford University, Jan 2011-present.
- Paul Urbancyzk, PhD (Co-advising), Stanford University, Sep 2011-present.

ADMINISTRATION

- Program Leader, Master of Science program in Rotorcraft, University of Glasgow
- Member, Departmental research committee, University of Glasgow
- Member, Departmental industrial committee, University of Glasgow
- Departmental Post-Graduate admissions officer, University of Glasgow

INVITED LECTURES

I1. "Goal Oriented Uncertainty Propagation Using Stochastic Adjoints," AIAA Computational Fluid Dynamics Conference, Honolulu, Hawaii, June 2011.

I2. "Error estimation for Uncertainty Quantification," SIAM Conference on Computational Science and Engineering, Reno, Nevada, Feb 2011.

I3. "Uncertainty Quantification for Hypersonic Scramjet Systems," Tata Institute of Fundamental Research, Bangalore, India, Dec 2009.

I4. "Rotor Wake Modelling: HPC Achievements and Requirements," Extreme Engineering - Opportunities Using Petaflop Computing, Science and Technology Facilities Council, Daresbury Laboratories, Daresbury, UK, July 2008.

PROFESSIONAL SERVICES

1. Organizing Committee: 2nd AIAA San Francisco Overset Grid Symposium, Sep 2011.
2. Member: AIAA Turbulence modeling benchmarking Working Group, Feb 2010-present.
3. Book Reviewer: John Wiley (Asia), Cambridge University Press (Americas).
4. Reviewer: Springer lecture notes in computational science and engineering.
5. Session Chair: AIAA Conferences.
6. Proposal Reviewer: Deutsche Forschungsgemeinschaft (DFG), US Army Research Laboratories.
7. Referee: Journal of Computational Physics, AIAA Journal, AIAA Journal of Aircraft, Physics of Fluids, Ocean Engineering, IME Journal of Aerospace Engineering, International Journal of Numerical Methods in Fluids, Journal of Turbulence, Journal of the American Helicopter Society, Aerospace Science and Technology, European Journal of Mechanics.

PROFESSIONAL MEMBERSHIPS

1. American Institute of Aeronautics and Astronautics.
2. American Helicopter Society.
3. Junior Member, Isaac Newton Institute, Cambridge University.