Giacomo Castiglioni

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Education

- **PhD in Aerospace Engineering** **GPA: 3.87**
  Research in Computational Fluid Dynamics of separated flows *5/2015*
  University of Southern California, Los Angeles, CA
- **MS in Aerospace and Mechanical Engineering** **GPA: 3.87**
  Computational Fluid and Solid Mechanics *12/2011*
  University of Southern California, Los Angeles, CA
- **MS coursework in Mechanical Engineering**
  Technical University of Delft, The Netherlands *8/2008 – 8/2009*
- **BS in Mechanical Engineering** **100/110**
  Politecnico of Milan, Italy *2/2009*

Employment

- **Postdoctoral fellow** **California Institute of Technology**
  - Multi specie supercritical flow simulations
  Pasadena, CA *11/2016 - current*
- **Senior Engineer external aerodynamics** **Tesla Motors**
  - Responsible for research new CFD methodologies *7/2016 - 10/2016*
  Hawthorne, CA
- **Senior Engineer thermal/aero systems** **Tesla Motors**
  - Responsible for HVAC aerodynamics of Model 3 *7/2015 - 7/2016*
  - Main CFD analyst for HVAC system
  - Submitted a patent for novel air vent design
  Palo Alto, CA
- **Research Assistant** **USC**
  - Prediction of laminar separation bubbles over wing/blade geometries *Fall 2010 - 2015*
  - Large Eddy Simulations
  - Immersed Boundary, Finite Volume code
  - Parallel computing
  University of Southern California, Los Angeles, CA
- **Computational Fluid Dynamics Analyst** **Tesla Motors**
  - Summer internship, simulations run on a cluster with STAR-CCM+ software *5/2012 - 8/2012*
  Fremont, CA
- **Teaching Assistant** **USC**
  - AME 499 Turbine Design and Analysis *Fall 2010 - Fall*
  - AME 408 Computer-Aided Design of Mechanical Systems *2013*
  (SolidWorks/CosmosWorks)
  - AME 301 Dynamics
  - AME 150 Introduction to Computational Methods (MATLAB)
  University of Southern California, Los Angeles, CA

Reviewing activity

1. Reviewer for *Journal of Computational Physics*

Journal papers

1. G. Castiglioni and J.A. Domaradzki. A numerical dissipation rate and viscosity in flow simulations with realistic geometry using low-order compressible Navier-Stokes solvers. *Comp. & Fluids*, 119:37–46, 2015
2. G. Castiglioni, J.A. Domaradzki, V. Pasquariello, S. Hickel, and M. Grilli. Numerical simulations of separated flows at moderate Reynolds numbers appropriate for turbine blades and unmanned aero vehicles. *Int. J. Heat and Fluid Flow*, 49:91–99, 2014

Peer-reviewed technical reports

1. G. Castiglioni, Domaradzki J.A., N. Krais, A. Beck, C.-D. Munz, and F. Schranner. Characterization of numerical dissipation rates in numerical simulations performed using discontinuous galerkin methods. In *Proceedings of the third TRR40 Summer Program, Technische Universität München*, 2015
2. G. Castiglioni, Domaradzki J.A., V. Pasquariello, S. Hickel, and M. Grilli. Numerical modeling of 3-D separated flows at Reynolds numbers appropriate for turbine blades and unmanned aero vehicles. In *Proceedings of the second TRR40 Summer Program, Technische Universität München*, pages 177–190, 2013
3. G. Castiglioni, J.A. Domaradzki, M. Grilli, and S. Hickel. Numerical modeling of separated flows at moderate Reynolds numbers appropriate for turbine blades and unmanned aero vehicles. In *Proceedings of the first TRR40 Summer Program, Technische Universität München*, pages 67–76, 2011

Conference proceedings

1. G. Castiglioni and J.A. Domaradzki. On the evaluation of numerical dissipation rate and viscosity in a commercial code. In *Proceedings of 9th International Symposium on Turbulence and Shear Flow Phenomena (TSFP9)*, 2015
2. F. Cadiuex, G. Castiglioni, J.A. Domaradzki, T. Sayadi, S. Bose, M. Grilli, and S. Hickel. LES of separated flows at moderate Reynolds numbers appropriate for turbine blades and unmanned aero vehicles. In *Proceedings of 8th International Symposium on Turbulence and Shear Flow Phenomena (TSFP8)*, 2013

Conference presentations

1. G. Castiglioni and J.A. Domaradzki. Quantifying numerical dissipation rate in a commercial CFD code. In *Bulletin of the American Physical Society, 67th Annual Meeting of the APS Division of Fluid Dynamics (DFD06)*, volume 59, 2014
2. G. Castiglioni, J.A. Domaradzki, M. Grilli, and S. Hickel. LES of separated flows over an airfoil at moderate Reynolds numbers. In *Bulletin of the American Physical Society, 65th Annual Meeting of the APS Division of Fluid Dynamics (DFD04)*, volume 57, 2012

Awards and grants

- Visiting research-fellow at SFB-TR40, Technische Universität München 2011, 2013, and 2017
- NSF grant CBET-1233160

Skills

- **Programming languages:** Fortran, C, C++, MATLAB, MPI, openMP, openACC and CUDA

- **Environments:** MAC, Windows, Linux/Unix
- **CAD programs:** CATIA, SolidWorks, SolidEdge
- **Commercial CFD:** STAR-CCM+, CFX
- **Finite Elements Analysis:** Abaqus, CosmosWorks