Pietro Ferrero

CONTACT INFORMATION	727 13th Ave SE, Apt. 7
	Minneapolis
	55414-1444, MN USA

Mobile: +1-612-819-5566
E-mail: ferrero@aem.umn.edu
pietroferrero@gmail.com

OBJECTIVE

Highly motivated Ph.D. candidate looking for a full-time position as an aerospace or mechanical engineer, preferably in the fields of computational fluid dynamics, heat transfer, combustion and turbulence. Confident to work in any area where mathematical modelling and computational simulations of physical processes are required.

AVAILABILITY

Expected date of graduation: June 2013.

AREAS OF EXPERTISE

Hypersonic / high temperature gas dynamics, turbulent combustion, Large-Eddy and Reynolds Averaged Navier-Stokes simulations, Conjugate Heat Transfer Problem, rarefied aerodynamics, stochastic Monte Carlo methods, continuum mechanics.
Many years of experience in developing parallel computer codes on high-level programming languages like Fortran90/95 and C.

PROFESSIONAL EXPERIENCE

Seagate Technology, Bloomington, Minnesota, USA.

Summer Internship   **June 2012 to September 2012**
- Part of the Mechanical Research and Development Division.
- In charge of modelling and doing competitive analysis of air-bearing surfaces used in hard-disk drives. Tasks included passive and thermo-mechanical aerodynamic simulations, head-lube reliability and environmental sensitivity analysis.

EDUCATION

- **University of Minnesota**, Minneapolis, Minnesota USA

  Ph.D. Candidate, Aerospace Engineering and Mechanics, **July 2008 - Present**
  * Research Focus: *Implementation of a hybrid Finite Volume-Monte Carlo method for Large Eddy Simulation of high speed turbulent reacting flows.*
  * Adviser: Prof. Graham V. Candler.
  * Area of Study: Fluid Dynamics.

- **Politecnico di Torino**, Torino, Italy, EU

  M.S., Aerospace Engineering, **March 2007**
  * Thesis Topic: *Strong Coupling between a Fluid Dynamic Solver and Material Response Code.*
  * Adviser: Prof. Domenic D'Ambrosio.
  * Final Grade: *110 out of 110.*

  B.S., Aerospace Engineering, **September 2004**
  * Thesis Topic: *Comparison between Different Propulsion Options for a Manned Mission to Mars.*
  * Most common aerospace subjects (emphasis on Fluid Dynamics, Flight Mechanics, Aerospace Structures and Aircraft Design).
  * Final Grade: *107 out of 110.*

CONFERENCE PUBLICATIONS	Ferrero, P., Otis, C., Candler, G.V., Filtered Mass Density Function for Variable-Density Turbulent Reactive Flows on Unstructured Meshes, *42nd AIAA Fluid Dynamics Conference, New Orleans, Louisiana, USA*, June 25-28, 2012.
	Ferrero, P., and D'Ambrosio, D., A Numerical Method for Conjugate Heat Transfer Problems in Hypersonic Flows, *40th AIAA Thermophysics Conference, Seattle, Washington, USA*, June 23-26, 2008.
PROFESSIONAL SKILLS	High expertise in the physics and simulation strategies for high-enthalpy turbulent reacting flows, heat transfer and combustion problems.
TECHNICAL SKILLS	Development, implementation and validation of new alogorithms and models for computational fluid dynamics. Extensive experience in setting up and running fluid dynamics solvers (grid generation, pre and post process of the solution).
	Programming: Fortran90/95, C, Python.
	Parallel Programming: Open MPI, Open MP. High espertise on developing and running codes on super-computer clusters.
	Grid Generation: GridGen, Pointwise, GridPro.
	Flow visualization: TecPlot360, Fluent.
	Fluid Mechanics Solvers: US3D (University of Minnesota high-temperature fluid dynamic code; based on award-winnig NASA code DPLR), Ansys Fluent.
	General engineering software: MATLAB, Mathematica, Solid Works.
AWARDS	Accademia delle Scienze di Torino (Science Accademy of Torino). • Recipient of the fellowship "Ernesto e Ben Omega Petrazzini" for the best Master Thesis in Fluid Dynamics (2007).
PREVIOUS EXPERIENCE	**Politecnico di Torino**, Turin, Italy EU.

Research Associate   **March 2007 to July 2008**
- Development of a Finite Volume thermal material response code.
- Coupling the thermal response code with an existing fluid solver for the prediction of heating rates for hypersonic vehicles reentering in the atmosphere.

REFERENCES AVAILABLE TO CONTACT	**Prof. Graham V. Candler** (e-mail: candler@aem.umn.edu; phone: +1-612-625-2364) • McKnight Presidential Professor, Aerospace Engineering and Mechanics, University of Minnesota ⋄ 119B Akerman Hall, 110 Union St. SE, Minneapolis, MN 55455. ⋆ *Prof. Candler is my graduate adviser.*

Prof. Domenic D'Ambrosio (e-mail: domenic.dambrosio@polito.it; phone: +39-011-090-6852)
- Professor, Department of Aerospace Engineering, Politecnico di Torino.
- ⋄ Corso Duca degli Abruzzi 24, Torino, 10129 Italy.
- ⋆ *Prof. D'Ambrosio was my supervisor during my research appointment at the Politecnico di Torino.*