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Current Position

Feb, 2018 - present	Associate Professor in Fluid Dynamics (ING-IND/06) Department of Mechanical and Aerospace Engineering (DIMEAS) Politecnico di Torino, Torino, Italy
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Research Interests

- Cardiovascular fluid dynamics
- Complex networks theory
- Hydrodynamic stability and Turbulence
- Spatial pattern formation

Publications

Journal Papers

- [J1] G. Iacobello, M. Marro, L. Ridolfi, P. Salizzoni, and Scarsoglio, "Experimental investigation of vertical turbulent transport of a passive scalar in a boundary layer: Statistics and visibility graph analysis," *Physical Review Fluids*, vol. 4(10), p. 104501, 2019. doi: [10.1103/PhysRevFluids.4.104501](https://doi.org/10.1103/PhysRevFluids.4.104501).
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- [J9] S. Scarsoglio, A. Saglietto, M. Anselmino, F. Gaita, and L. Ridolfi, "Alteration of cerebrovascular haemodynamic patterns due to atrial fibrillation: an *in silico* investigation," *Journal of the Royal Society Interface*, vol. 14(129), p. 20170180, 2017. doi: [10.1098/rsif.2017.0180](https://doi.org/10.1098/rsif.2017.0180).
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Book Chapters

- [B1] F. Jeltsch, L. Turnbull, S. Scarsoglio, C. L. Alados, F. Gallart, E. N. Mueller, N. Barbier, J. D. A. Millington, J. Wainwright, M. Wieczorek, and V. Grimm, "Chapter 3: Resilience, Self-Organization, Complexity and Pattern Formation," in *Patterns of Land Degradation in Drylands: Understanding Self-Organized Ecogeomorphic Systems* (E. N. Mueller, J. Wainwright, A. J. Parsons, L. Turnbull, ed.), pp. 55–84, ISBN: 978–94–007–5726–4, Springer, 2014. doi: [10.1007/978-94-007-5727-1_3](https://doi.org/10.1007/978-94-007-5727-1_3).
- [B2] L. Turnbull, T. Hochstrasser, M. Wieczorek, A. Baas, J. Wainwright, S. Scarsoglio, B. Tietjen, F. Jeltsch, and E. N. Mueller, "Chapter 7: Approaches to Modelling Ecogeomorphic Systems," in *Patterns of Land Degradation in Drylands: Understanding Self-Organized Ecogeomorphic Systems* (E. N. Mueller, J. Wainwright, A. J. Parsons, L. Turnbull, ed.), pp. 171–209, ISBN: 978–94–007–5726–4, Springer, 2014. doi:[10.1007/978-94-007-5727-1_7](https://doi.org/10.1007/978-94-007-5727-1_7).
- [B3] L. Ridolfi, P. D'Odorico, and F. Laio, "Chapter 5: Noise-induced pattern formation," in *Noise-Induced Phenomena in the Environmental Sciences* (Cambridge University Press, New York, ed.), pp. 167–239, ISBN: 978–0–521–19818–9, 2011. Contribution to the numerical simulations and the analysis of the results (see Preface). www.cambridge.org/9780521198189.

Proceedings and Conference Presentations (Speaker underlined)

- [PC1] Scarsoglio, S., L. Ridolfi, A. Saglietto, and M. Anselmino, "To what extent does heart rate alter the cerebral hemodynamic patterns during atrial fibrillation?," in *IFMBE Proceedings*, vol. 76, (MEDICON 2019, Coimbra, Portugal, September 26-28, 2019), pp. 108–106, 2020.
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- [PC4] Gallo, C., L. Ridolfi, and S. Scarsoglio, "A comprehensive multiscale model of the cardiovascular system," in *XXIV AIMETA Conference Book*, vol. 24, (XXIV AIMETA Conference, Rome, Italy, September 15-19, 2019), p. 189, 2019.
- [PC5] Calò, K., D. Gallo, V. Mazzi, S. Scarsoglio, M. Owais Khan, D. A. Steinman, L. Ridolfi, and U. Morbiducci, "Computational hemodynamics & complex networks integrated platform to study intravascular flow in the carotid bifurcation," in *Proceedings of the 2019 Summer Biomechanics, Bioengineering, and Biotransport Conference*, vol. SB3C2019, (Summer Biomechanics, Bioengineering and Biotransport Conference, Seven Springs, PA, USA, June, 25-28, 2019), p. 2, 2019.
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- [PC9] Iacobello, G., S. Scarsoglio, J. G. M. Kuerten, and L. Ridolfi, "Temporal network-based analysis of turbulent mixing," in *7th International Conference on Complex Networks and Their Applications Book of Abstracts*, vol. 7, (7th International Conference on Complex Networks and Their Applications, Cambridge, UK, December 11-13, 2018), pp. 383–386, ISBN: 978-2-9557050-2-5, 2018.
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- [PC25] Saglietto, A., M. Anselmino, S. Scarsoglio, F. Gaita, and L. Ridolfi, "Higher resting heart rate relates to greater rise in pulmonary vein pressure under exercise during permanent atrial fibrillation: a computational study," in *76 Congresso Annuale Società Italiana Cardiologia*, vol. 76, (76 Congresso Annuale Società Italiana Cardiologia, Rome, Italy, 11-14 December, 2015), p. 1, 2015.
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- [PC40] Scarsoglio, S., D. Tordella, and W. O. Criminale, "A multiscale approach to study the stability of long waves in near-parallel flows," in *Bull. Am. Phys. Soc.*, vol. 52, (60th Annual Meeting Division of Fluid Dynamics (APS-DFD), Salt Lake City UT, USA, November 18-20, 2007), p. 64, 2007.
- [PC41] Scarsoglio, S., D. Tordella, and W. O. Criminale, "Temporal dynamics of small perturbations for a 2D growing wake," in *Advances in Turbulence XI. ETC11, CIMNE (ESP)*, vol. 117, (11th Euromech European Turbulence Conference, Porto, Portugal, June, 25-29 2007, 2007), pp. 221-223, ISBN: 978-3-540-72603-6, 2007. doi: [10.1007/978-3-540-72604-3_70](https://doi.org/10.1007/978-3-540-72604-3_70).
- [PC42] Scarsoglio, S., D. Tordella, and W. O. Criminale, "Initial-value problem for the 2D growing wake," in *Bull. Am. Phys. Soc.*, vol. 51, (59th Annual Meeting Division of Fluid Dynamics (APS-DFD), Tampa FL, USA, November 19-21, 2006), p. 88, 2006.
- [PC43] Tordella, D., S. Scarsoglio, and M. Belan, "A synthetic perturbative hypothesis for multiscale analysis of bluff-body wake instability," in *European Fluid Mechanics Conference 6 Book of Abstracts*, vol. 6, (Euromech Fluid Mechanics Conference 6, Stockholm, Sweden, June 26-30, 2006), p. 317, 2006.
- [PC44] Scarsoglio, S., D. Tordella, and M. Belan, "Analysis of the convective instability of the 2D wake," in *22nd IFIP TC 7 Conference on System Modeling and Optimization*, vol. 1, (22nd IFIP TC 7 Conference on System Modeling and Optimization, Torino, Italy, July 18-22, 2005), p. 77 (5 pages), 2005.

PhD Thesis

- [T1] S. Scarsoglio, *Hydrodynamic linear stability of the two-dimensional bluff-body wake through modal analysis and initial-value problem formulation*. PhD thesis, Politecnico di Torino, Torino, Italy, 2008.

Invited Talks

- Feb 18, 2015 *Lumped-parameter modeling of the cardiovascular system*, "Città della Salute e della Scienza" Hospital, University of Turin, Division of Cardiology, Torino, Italy (hosted by Dr. M. Anselmino and Prof. F. Gaita).
- Jun 22, 2011 *Spatial pattern formation induced by stochastic processes*, Systems Biomedicine, Department of Experimental Oncology, Campus IFOM-IEO, Milan, Italy (hosted by Dr. A. D'Onofrio).
- Apr 6, 2011 *Hydrodynamic stability and energy spectrum power-law decay of linearized perturbed systems: the 2D bluff-body wake*, Computational Science and Engineering Laboratory, ETH Zurich, Zurich, Switzerland (hosted by Prof. P. Koumoutsakos).
- Jun 7-10, 2010 *Noise-induced spatial pattern formation*, European Science Foundation Workshop "Self-organised ecogeomorphic systems: confronting models with data for land-degradation in drylands". Poster presentation and seminar session. Potsdam, Germany.
- May 6, 2010 *Hydrodynamic linear stability of the two-dimensional bluff-body wake through modal analysis and initial-value problem formulation and Noise-induced spatial pattern formation in dynamical systems*, DICAT, Università degli Studi di Genova, Genova, Italy (hosted by Prof. A. Bottaro).

Sep 4, 2007 *Instability and turbulence in flows of automotive and aeronautical interest*, Research Projects between Unione Industriale Torino and Politecnico di Torino. Unione Industriale Torino, Torino, Italy.

Apr 6, 2006 *Absolute and convective instability of the two-dimensional wake*, Applied and Computational Mathematical Sciences Seminars, University of Washington, Seattle, Washington USA (hosted by Dr. C. Lind and Prof. W. O. Criminale).

Institutional Academic Roles

- 2017-present Member of the PolitoBIOMed Lab - Biomedical Engineering Lab, Politecnico di Torino
- 2017-present Student Tutoring Service for the MSc and BSc Degrees in Aerospace Engineering, Politecnico di Torino
- 2017-present Reference Teacher within the AVA-ANVUR Procedure (Italian National Agency for the Evaluation of the University and Research Systems) for the BSc Degree in Aerospace Engineering, Politecnico di Torino
- 2017 Member of the Scientific Board for an Assistant Professor position (Researcher A-Type) in Fluid Dynamics, University of Bologna, Department of Industrial Engineering, Forlì
- 2017-present Member of the Scientific Board for PhD Final Examination (Fluid Dynamics PhD School, Aerospace Engineering PhD School), Politecnico di Torino
- 2015-2016 Aggregate member (Aerospace Engineering) of the Committee for the Professional Engineering Qualifying Examination (Esami di stato per l'abilitazione all'esercizio della professione di Ingegnere), I and II sessions, Politecnico di Torino
- 2015-present Erasmus+ and Extra-UE Mobility Coordinator for the MSc Degree in Aerospace Engineering, Politecnico di Torino
- 2016-present "Young Talent Project" Mobility Coordinator for the BSc Degree in Aerospace Engineering, Politecnico di Torino
- 2015-present Member of the Scientific Board for Post-graduate and Post-doc research fellowships, Politecnico di Torino
- 2015-present Effective Member of the Scientific Board for the PhD School in Aerospace Engineering, Politecnico di Torino
- 2014 Aggregate Member of the Scientific Board for the PhD School in Aerospace Engineering, Politecnico di Torino
- 2013-2014 Aggregate Member of the Scientific Board for the PhD School in Environmental Engineering, Politecnico di Torino
- 2012-present Member of the Degree Board for Aerospace Engineering (MSc and BSc), Mechanical Engineering (MSc and BSc), Civil Engineering (MSc), Biomedical Engineering (MSc), Politecnico di Torino
- 2012-present Member of the Examination Board for Aerospace Engineering Courses (Aeroelasticity, Applied Aerodynamics, Aerodynamics, Aero-acoustics, Applied thermodynamics and heat transfer), and Mathematical Engineering Courses (Fluid Dynamics), Politecnico di Torino

Previous Positions

- Oct, 2014 - **Assistant Professor with tenure in Fluid Dynamics**
Jan, 2018 Department of Mechanical and Aerospace Engineering
Politecnico di Torino, Torino, Italy
- Oct, 2011 - **Assistant Professor in Fluid Dynamics**
Oct, 2014 Department of Mechanical and Aerospace Engineering
Politecnico di Torino, Torino, Italy
- Jul, 2011 - **Term-Contract Worker**
Sep, 2011 CIFS, Interuniversity Consortium for Space Physics, Torino, Italy
Scientific Advisor: Prof. D. Tordella.
- Jul, 2009 - **Post-Doctoral Research Fellow**
May, 2011 Department of Water Engineering, Politecnico di Torino, Torino, Italy
Project: Spatial pattern formation induced by stochastic processes.
Scientific Advisors: Prof. F. Laio and Prof. L. Ridolfi.
- May, 2008 - **Fluid Dynamics and Mechanical Analyst**
May, 2009 Fiat Research Center, Powertrain Technologies and Research, Torino, Italy
Finite element modelling, thermal and thermo-structural analysis. Engine components analysis for automotive Diesel and gasoline applications
- Feb-May, 2008 **Post-Doctoral Research Fellow**
Department of Aeronautics and Space Engineering, Politecnico di Torino
Project: Regione Piemonte Research Grant E59 "Aerodynamic simulation of an ultra-light airfoil".
Scientific Advisor: Prof. D. Tordella.

Visiting Positions

- Oct, 2011 - **Visiting assistant professor**
Dec, 2011 Massachusetts Institute of Technology, Cambridge MA, USA
Mathematics Department, Prof. G. Staffilani
- Jan, 2006 - **Visiting graduate student**
Jan, 2007 University of Washington, Seattle WA, USA
Department of Applied Mathematics, Prof. W. O. Criminale

Organization of scientific meetings

- Oct, 2009 **Member of the Organizing Committee**
Euromech Colloquium 512, *Small Scale Turbulence and Related Gradient Statistics* (www.euromech512.polito.it/), Accademia delle Scienze di Torino, Torino, Italy.

Referee Activity

Referee for the following ISI journals:

- Scientific Reports, Journal of Fluid Mechanics, PLoS ONE, Journal of Computational Physics, Physics Letters A, Fluid Dynamics Research, Journal of Fluids Engineering, International Journal of Bifurcation and Chaos, Hydrology and Earth System Sciences, Anatolian Journal of Cardiology, Ecological Complexity, Stochastic Environmental Research and Risk Assessment, Indian Journal of Physics, Discrete Dynamics in Nature and Society

Memberships of Scientific Societies

- 2006-present Member of the European Mechanics Society
 2006-present Member of the American Physical Society

Teaching Experience

Teacher

- 2018-present Teacher (together with Dr. D. D'Ambrosio), *Fluid Dynamics in space flight* (Master Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2016-present Teacher, *Applied thermodynamics and heat transfer* (Undergraduate Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2015-2016 Teacher (together with Prof. E. Carrera), *Aeroelasticity* (Master Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2007-2008 Teacher (together with Prof. D. Tordella and Dr. G. Khujadze), *Hydrodynamic Stability* (PhD course, Politecnico di Torino, Torino, Italy)

Teaching Assistant

- 2012-present *Aerodynamics* (teacher: Prof. R. Arina, Undergraduate Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2014-2015 *Gas Dynamics* (teacher: Prof. G. Iuso, Master Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2012-2015 *Applied Aerodynamics* (teacher: Prof. G. M. Di Cicca, Undergraduate Course, Aerospace Engineering, Politecnico di Torino, Torino, Italy)
 2011-2014 *Fluid Dynamics* (teacher: Prof. D. Tordella, Master Course, Mathematical Engineering, Politecnico di Torino, Torino, Italy)
 2007-2008

Thesis and Research Project Advisership

PhD Students

- Nov, 2017 - present Caterina Gallo
 Research Topic: "Fluid dynamics of the cardiovascular system under different acceleration conditions: a multi-scale modelling approach".
 PhD School in Aerospace Engineering, Politecnico di Torino, XXXIII Cycle (Advisor: S. Scarsoglio, Co-Advisor: L. Ridolfi)

Nov, 2016 - present Giovanni Iacobello
Research Topic: "Advanced techniques for the spatio-temporal analysis of fluid flows: application of the complex network theory".
PhD School in Aerospace Engineering, Politecnico di Torino, XXXII Cycle (Advisor: S. Scarsoglio)

Master Degree

- ongoing S. Franzin, *Innovative techniques for the analysis of atrial fibrillation signals*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- ongoing D. Perrone, *Lagrangian analysis of the turbulent mixing*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi)
- Jul, 2019 L. Capello, *Recurrence plot analysis of turbulent boundary layers with passive scalar dispersion*, MSc in Mechanical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi and G. Iacobello)
- Mar, 2019 M. Grumo, *Complex network analysis of wind tunnel experiments on the passive scalar dispersion in a turbulent boundary layer*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi and G. Iacobello)
- Dec, 2018 A. Pasino, *Innovative analyses of meteorological data*, MSc in Mathematical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi and G. Iacobello)
- Dec, 2018 F. Dallari, *Complex-network analysis of turbulent channel flow: effects of the Reynolds number*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi and G. Iacobello)
- Oct, 2018 I. Ferrandino, *Heartbeat sequence extraction from cerebral NIRS measures*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Oct, 2018 M. Assale, *Network analysis of MRI-based aortic blood flow*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Oct, 2017 M. Bivona, *Validation of a 3D thermo-hydraulic code for the steam generation*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: École Centrale de Lyon/Polito, Advisors: S. Scarsoglio, and J.M. Vignon)
- Oct, 2017 M. Nicoletti, *Implementation of a wake detector and wind farm control algorithm for wind tunnel tests*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: Technical University of Munich/Polito, Advisors: S. Scarsoglio, R. Arina, and J. Schreiber)
- Jul, 2017 A. Cina, *Predictive models for the evolution of aortic aneurysms. Formulation and validation on the Database of the Hypertension Center "Città della Salute e della Scienza di Torino" Hospital*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Apr, 2017 C. Gallo, *Effects of arrhythmias on the arterial fluid dynamics*, MSc in Aerospace Engineering, Politecnico di Torino (Advisor with L. Ridolfi)
- Mar, 2017 F. Antigo, *Determinants of the evolution of aortic aneurysms. Multivariate analysis of the Database of the Hypertension Center "Città della Salute e della Scienza di Torino" Hospital*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)

- Dec, 2016 T. Rossi, *Numerical analysis of surface pattern for a clutch*, MSc in Mechanical Engineering, Politecnico di Torino (Thesis abroad: Karlsruhe Institute of Technology/Polito, Advisors: S. Scarsoglio, B. Frohnepfel, J. Kriegseis, and A. Codrignani)
- Dec, 2016 R. Giunta, *Hydraulic losses in Fontan procedure for the treatment of the univentricular heart in infants. A numerical study*, MSc in Biomedical Engineering, Politecnico di Torino (Advisor with D. Gallo, L. Ridolfi, and U. Morbiducci)
- Oct, 2016 F. Cazzato, *From time-series to complex networks: application to the cerebrovascular patterns in atrial fibrillation*, MSc in Biomedical Engineering, Politecnico di Torino (Co-advisor with L. Ridolfi)
- Oct, 2016 F. Imerti, *Lattice-Boltzmann numerical simulation of a rod in the sub-critical turbulent regime*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: École Centrale de Lyon/Polito, Advisors: S. Scarsoglio, R. Arina, and E. Lévêque)
- Jul, 2016 A. Aprile, *Modeling and simulation of irregular sea spectra*, MSc in Aerospace Engineering, Politecnico di Torino (Thesis abroad: NASA JPL CalTech/Polito, Advisors: R. Arina, S. Scarsoglio and M. B. Quadrelli)
- Apr, 2016 G. Iacobello, *New insights into spatial characterization of turbulent flows: a complex network-based analysis*, MSc in Aerospace Engineering, Politecnico di Torino
- Dec, 2015 E. Siuni, *Elastodynamics of collapsible tubes*, MSc in Civil Engineering, Politecnico di Torino (Co-advisor with C. Camporeale and L. Ridolfi)
- Jul, 2014 G. Barletta, *A complex network approach for the analysis of turbulent flows. Application to homogeneous isotropic turbulence*, MSc in Aerospace Engineering, Politecnico di Torino
- Dec, 2012 A. Boscolo, *Perturbative and mean pressure field in the 3D boundary layer*, MSc in Aerospace Engineering, Politecnico di Torino (Co-advisor with D. Tordella)
- Jul, 2011 M. Mastinu, *Collective behaviour of 3D linear perturbation waves in shear flows*, MSc in Mathematical Engineering, Politecnico di Torino (Co-advisor with D. Tordella)

Bachelor Degree

- Oct, 2019 D. Marampon, *Artificial gravity as countermeasure to human spaceflight*, BSc in Aerospace Engineering, Politecnico di Torino
- Sep, 2019 P. Pertoso, *Transition to turbulence in shear flows*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2019 S. Scalabrino, *Lagrangian analysis of turbulent dispersion by means of complex networks*, BSc in Aerospace Engineering, Politecnico di Torino (Advisor with G. Iacobello)
- Mar, 2019 A. Palmarini, *Application of CFD in the study of the respiratory system*, BSc in Aerospace Engineering, Politecnico di Torino
- Oct, 2018 M. P. Savino, *Turbulent channel flow analysis through the horizontal visibility graph*, BSc in Aerospace Engineering, Politecnico di Torino (Advisor with G. Iacobello)
- Oct, 2018 C. Minerva, *Numerical resolution and visualization of the Blasius boundary layer through the Runge-Kutta method*, BSc in Aerospace Engineering, Politecnico di Torino
- Sep, 2018 F. M. Marin, *Statistical analysis of turbulent boundary layer with passive scalar dispersion*, BSc in Aerospace Engineering, Politecnico di Torino (Advisor with G. Iacobello)

- Sep, 2018 G. Colella, *The fluid dynamics of competitive swimming*, BSc in Aerospace Engineering, Politecnico di Torino
- Sep, 2018 G. Morrone, *Numerical solution of the incompressible Navier-Stokes equations on rectangular domains*, BSc in Aerospace Engineering, Politecnico di Torino
- Sep, 2018 S. Di Sturco, *Magnus effect in physical and engineering applications*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2018 F. Doronzo, *Preliminary evaluation of the CICLoPE experiments*, BSc in Aerospace Engineering, Politecnico di Torino
- Sep, 2017 G. Carossino, *Rayleigh-Bénard convection: theoretical and experimental aspects*, BSc in Aerospace Engineering, Politecnico di Torino
- Sep, 2017 F.F. Lizzio, *Hydraulic transient in pipe flows: the water-hammer effects*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2017 I.D. Barbieri, *Biomimetic Hydrodynamics*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2016 M. Enea, *Cardiovascular alterations during space flight: a survey of measurements and numerical approaches*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2016 F. Fiusco, *Complex network time series analysis in turbulent channel flows*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2016 D. Prino, *From time series to complex networks: implementation of the visibility algorithm for turbulent flows*, BSc in Aerospace Engineering, Politecnico di Torino
- Oct, 2015 A. Ferro, *Role of winglets for the reduction of lift-induced drag*, BSc in Aerospace Engineering, Politecnico di Torino
- Oct, 2015 A. Nalin, *Aerodynamic numerical simulations of a bio-inspired wing through OpenFoam*, BSc in Aerospace Engineering, Politecnico di Torino (Co-advisor with R. Arina)
- Oct, 2015 O. Pinti, *OpenFoam analysis of a bio-mimetic wing with sinusoidal leading edge*, BSc in Aerospace Engineering, Politecnico di Torino (Co-advisor with R. Arina)
- Jul, 2015 L. Cancarini, *Analytical modeling of flows in collapsible tubes: a survey of lumped and mono-dimensional approaches*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2015 D. Codoni, *Development of a Matlab code for potential flows around 2D bodies*, BSc in Aerospace Engineering, Politecnico di Torino (Co-advisor with R. Arina)
- Jul, 2015 L. De Filippis, *Hemodynamic model for the analysis of valvular insufficiencies*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2015 L. De Martino Norante, *Evolution of the back rear in racing cars*, BSc in Aerospace Engineering, Politecnico di Torino (Advisor with R. Arina)
- Jul, 2015 E. Degregori, *Visualization and statistical analysis of turbulent flows*, BSc in Aerospace Engineering, Politecnico di Torino (Advisor with R. Arina)
- Jul, 2015 D. Esposito, *Aerodynamic analysis of a bio-inspired wing through a mathematical model*, BSc in Aerospace Engineering, Politecnico di Torino (Advisor with R. Arina)
- Jul, 2015 G. Lombardo, *Finite difference scheme for the Blasius and Falkner-Skan boundary layer equations*, BSc in Aerospace Engineering, Politecnico di Torino (Co-advisor with R. Arina)

- Jul, 2015 F. Mitrotta, *Cardiovascular evolution of the hemodynamic parameters under the combined effect of atrial fibrillation and mitral insufficiency*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2015 E. Saredi, *Aerodynamic model for the morpho-geometric characterization of a bio-mimetic wing*, BSc in Aerospace Engineering, Politecnico di Torino (Advisor with R. Arina)
- Jul, 2015 M. Talmelli, *Development of a Matlab Graphic Interface for the resolution of potential flows*, BSc in Aerospace Engineering, Politecnico di Torino (Advisor with R. Arina)
- Jul, 2015 M. Zurlo, *Statistical analysis and modeling of turbulent flows*, BSc in Aerospace Engineering, Politecnico di Torino (Co-advisor with R. Arina)
- Dec, 2014 T. Rossi, *Hemodynamic modeling of cardiac arrhythmias*, BSc in Mechanical Engineering, Politecnico di Torino (Co-advisor with C. Camporeale and L. Ridolfi)
- Jul, 2014 M. Bivona, *Characterization and aerodynamic analysis of a bio-inspired airfoil*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2014 L. Bonino, *Analysis and description of flows in collapsible tubes through experimental studies*, BSc in Aerospace Engineering, Politecnico di Torino
- Jul, 2014 M. Lonoce, *Geometry effects on the aerodynamic characteristics of a bio-mimetic airfoil*, BSc in Aerospace Engineering, Politecnico di Torino
- Oct, 2010 S. Sedda, *Transient dynamics of 3D perturbations on a finite wing boundary layer*, BSc in Aerospace Engineering, Politecnico di Torino (Co-advisor with D. Tordella)

National and International Research Projects and Grants

- Dec, 2017 **FFABR Grant**
MIUR Funds for financing fundamental research activities.
- 2017 **Post-Graduate Research Fellowship "Ernesto e Ben Omega Petrazzini", Accademia delle Scienze di Torino**
Research Topic: "Effects of acceleration on human blood circulation for aerospace applications". Fellowship awarded to Caterina Gallo.
Role: Supervisor
- 2017-present **Compagnia di San Paolo - UNITO Excellent Young PI Research Project, CSTO160444**
Title: "Cerebral hemodynamics during atrial fibrillation", Università degli Studi di Torino and Politecnico di Torino.
Role: Participant
- 2016 **Post-Graduate Research Fellowship "Ernesto e Ben Omega Petrazzini", Accademia delle Scienze di Torino**
Research Topic: "Advanced techniques for the analysis of turbulent flows: application to the complex network theory". Fellowship awarded to Giovanni Iacobello.
Role: Supervisor

- 2013-2014 **ISCRA Project Class C HP10CGPPAA, IsC15 (CINECA)**
 Title: "Acoustic and turbulence numerical simulations", Politecnico di Torino.
 Role: Participant
- 2012-2013 **ISCRA Project Class C HP10CKRIG3, IsC09 (CINECA)**
 Title: "Technical assessment of MPI code and development and comparison of hybrid openMP/MPI code for the solution of the Navier-Stokes equations", Politecnico di Torino.
 Role: Participant
- 2010-2011 **ISCRA Project Class A HP10AJ2GTB, IsA01 (CINECA)**
 Title: "Turbulent mixing and diffusion", Politecnico di Torino.
 Role: Participant
- 2009-2012 **MITOR Project between MIT and Politecnico di Torino**
 Title: "Long term interaction in flow systems".
 Role: Participant
- 2005-2010 **Regione Piemonte Project E59**
 Title: "New concepts and methodologies for the development of innovative ultralight aircrafts", Politecnico di Torino.
 Role: Participant
- 2006-2010 **Internationalization Programme between the Politecnico di Torino and the University of Washington**
 Title: "Joint actions in the field of fundamental and applied fluid dynamics".
 Role: Participant
- 2005-2007 **PRIN**
 Title: "Mean-long term evolution of hypersonic jets: visualization, density and concentration measurements, numerical simulation. Application to the stellar jets".
 Role: Participant

Computer Skills

Software Environments	Matlab, Mathematica, R
Programming Languages	Fortran 77, C
Commercial Software	Altair HyperMesh, Abaqus, MSC Nastran, MSC Fatigue
Markup Languages	LaTeX, HTML

Web Languages: PHP, CSS, JS. Database Management System: MySQL. Content Management System: Joomla
OS Microsoft Windows, Linux

Linguistic Knowledge

Italian Native
English Very Good (First Certificate in English, December 1999)
French Basic

Education

- Mar, 2008 **Doctor of Philosophy, Fluid Dynamics**
Department of Aeronautics and Space Engineering, Politecnico di Torino (XX Cycle), Torino, Italy
Thesis: Hydrodynamic linear stability of the two-dimensional bluff-body wake through modal analysis and initial-value problem formulation
Advisor: Prof. D. Tordella
- Dec, 2004 **Master of Science, Mathematical Engineering**
Politecnico di Torino, Torino, Italy
Thesis: Linear stability of non-parallel flows. Multiscale analysis applied to the bluff-body wake
Advisor: Prof. D. Tordella
Marks: 110/110 *cum laude*
- Oct, 2002 **Bachelor of Arts, Mathematics for Engineering Sciences**
Politecnico di Torino, Torino, Italy
Thesis: Finite element formulation of eddy currents in terms of the magnetic potential
Advisor: Prof. M. Repetto
Marks: 105/110
- Jul, 1999 **High School diploma**
Liceo Scientifico N. Copernico, Torino, Italy
Marks: 100/100