

JOEL GUERRERO

Via Bologna 2A-39, Genoa, Italy 16127

+39-335-6410013 • joel.guerrero@unige.it, guerrero@wolfdynamics.com, joegi.geo@yahoo.com

Education

University of Genoa.

DICAT - Dipartimento di Ingegneria delle Costruzioni, dell'Ambiente e del Territorio (Department of Construction, Environmental and Geomatic Engineering). Genoa, Italy.

Ph.D. in Fluid Dynamics. 01/2006 - 04/2009

SUPAERO.

Toulouse, France. École Nationale Supérieure de l'Aéronautique et de l'Espace.

Master of Science in Aeronautical Engineering. 09/2003 - 03/2005

IUPFAN.

Maracay, Venezuela. Polytechnic University of the National Armed Forces

BSc in Aeronautical Engineering. 01/1994 - 06/1998

Research Highlights/Interests

- Multi-physics simulations, computational fluid dynamics, and scientific computing.
- High-performance computing and cloud computing.
- Incompressible and compressible flows.
- Theoretical and computational aerodynamics.
- Turbulence modeling.
- Multiphase flows.
- Mesh generation and solid modeling
- Scientific visualization, augmented reality, and pattern recognition.
- Design optimization, design space exploration, and uncertainty quantification.
- Surrogate-based optimization for engineering design,
- Data analytics, exploratory data analysis, and knowledge extraction.
- Machine learning and data mining.

Work Experience

2/2020-present

University of Genoa

Genoa, Italy

Assistant Professor

- Responsible for developing the curriculum for the course on Turbulence Modeling and CFD Models.
- Co-instructor of the graduate courses of Aerodynamics, Advanced Fluid Dynamics, and Computational Chemical Engineering.
- Responsible for tutoring undergraduate and graduate students during their theses and research work, particularly in the areas of computational fluid dynamics, aerodynamics, scientific computing, and numerical optimization.
- Responsible for supervising graduate students during their research projects and working with them to publish their scientific work in technical journals.
- Working with graduate students to generate technical reports for the dissemination of on-going research.
- Serving as a reviewer for technical journals.
- Member of the quality assurance commission of the Mechanical and Aeronautical engineering program.
- Administrative duties.

- 6/2012-present Wolf Dynamics Genoa, Italy
Co-founder – Chief Technology Officer – Technical curriculum developer
- Developing, updating, and distributing technical documentation for training purposes, troubleshooting, and technical follow-up.
 - Delivering timely solutions, technical support, and training to customers.
 - Publishing in print or online for the dissemination of on-going research and project results.
 - Writing technical reports according to customer requirements and industry standards.
 - Organizing and delivering classroom and online training sessions.
 - Working with academia and industry to find new funding opportunities.
 - Responsible for marketing campaigns, networking, content creation, and maintaining the website (www.wolfdynamics.com).
 - Consultant in the areas of CFD and numerical simulations, aerodynamics, numerical optimization, data analytics, and interactive data visualization.
- 10/2009-3/2018 University of Genoa Genoa, Italy
Postdoctoral Research Fellow
- Responsible for tutoring undergraduate and graduate students during their theses and research work, particularly in the areas of computational fluid dynamics, scientific computing, numerical optimization and flight mechanics.
 - Responsible for supervising graduate students during their research projects and working with them to publish their scientific work in technical journals.
 - Working with graduate students to generate technical reports for the dissemination of on-going research.
 - Responsible for developing training material and tutorials to teach the use of commercial and open source software related to multi-physics simulations, computational fluid dynamics, and numerical optimization.
 - Responsible for developing training material and tutorials to teach data analytics, interactive data visualization, and knowledge extraction.
 - Teaching assistant for the graduate courses in Aerodynamics and Advanced Fluid Dynamics at the University of Genoa. More than 40 hours of teaching, office work and development of midterm and final exams.
 - Main instructor for the introductory and advanced courses in Computational Fluid Dynamics using Open-Source Applications. These courses are offered at the University of Genoa in collaboration with the university spin-off Wolf Dynamics.
 - Performing benchmarking studies and carrying out performance evaluations of new and existing software/hardware for HPC applications.
 - Documenting software validation using experimental or analytical results.
 - Serving as a reviewer for technical journals.
- 10/2002-9/2003 Santa Barbara Airlines Maracaibo, Venezuela
Chief of Maintenance and Production Department
- Responsible for supervising all maintenance activities.
 - Working with the Engineering Department to plan, supervise, and organize all short-, mid- and long-term maintenance activities.
 - Training of new personnel.
 - Responsible for the troubleshooting program.
 - Establishing the guidelines for the unscheduled maintenance program and monitoring all maintenance activities not contained in the manufacturer-approved maintenance program.
 - Verification of the proper paperwork of all maintenance activities and of their compliance with the highest industry standards.
- 10/1998-10/2002 Santa Barbara Airlines Maracaibo, Venezuela
Aircraft System Engineer/Head of Engineering and Planning Department
- Development of the reliability-centered maintenance program for predictive maintenance.
 - Responsible for the engine conditional trend monitoring program.
 - Responsible for the planning and organization of aircraft short-, mid- and long-term maintenance.
 - Working with the flight operations department to reduce fuel consumption and provide better training to the flight crew regarding aircraft systems operation.
 - Training of new personnel.
 - Responsible for the fleet airworthiness and certification program.
 - Keeping all technical publications up to date.
 - Helping the production department in troubleshooting aircraft systems failure.
 - Liaising between the airworthiness national authority and the aircraft manufacturer.

Teaching Experience:

- Main instructor of the graduate course on Turbulence and CFD Models. University of Genoa. Department of Civil, Chemical and Environmental Engineering. Genoa, Italy. Spring semester 2020-2021.
- Secondary instructor for the graduate course in Computational Chemical Engineering – Basis of Computational Techniques. University of Genoa. Department of Civil, Chemical and Environmental Engineering. Genoa, Italy. Fall semester 2019-2020.
- Secondary instructor for the graduate course in Aerodynamics. University of Genoa. Department of Civil, Chemical and Environmental Engineering. Genoa, Italy. Fall semester 2018- 2020.
- Secondary instructor for the graduate course in Advanced Fluid Dynamics. University of Genoa. Department of Civil, Chemical and Environmental Engineering. Genoa, Italy. Spring semester 2017-2021.
- Main instructor for the Introductory OpenFOAM Technology course. University of Genoa. Department of Civil, Chemical and Environmental Engineering. Genoa, Italy. Classroom training, 1-week intensive course, summer 2012-2019.
- Main instructor for the Introductory OpenFOAM Technology course. University of Genoa and Wolf Dynamics. Online training, 8-weeks course, 2020-2021.
- Main instructor for the Advanced Numerical Simulation course using OpenFOAM Technology. Topics covered: turbulence modeling, multiphase flows, numerical optimization, dynamic meshes, introduction to the finite volume method, naval applications, mesh generation, solid modeling. University of Genoa. Department of Civil, Chemical and Environmental Engineering. Genoa, Italy. Classroom training, 1-week intensive course, winter and summer sessions 2015-2019, winter 2020.
- Main instructor for the Advanced Numerical Simulation course using OpenFOAM Technology. Topics covered: turbulence modeling, multiphase flows, numerical optimization, dynamic meshes, introduction to the finite volume method, mesh generation, solid modeling. Wolf Dynamics. Online training, winter and summer sessions 2020-2021.
- Main instructor of the course “Metodi e strumenti CAE per l’ottimizzazione multidisciplinare in fase di prototipazione virtuale” (Methods and CAE tools for multidisciplinary optimization in virtual prototyping). University of Genoa. Department of Mechanical Engineering. Genoa, Italy. February 26-28, 2017.
- Main instructor of several courses delivered by Wolf Dynamics in online and classroom mode. The courses included (but not limited to): Solid modeling, CFD and multi-physics simulations using open-source and commercial applications, advanced topics in CFD, and numerical optimization.
- I have also taught industry-related courses in computational fluid dynamics using open-source and commercial software packages.

Reviewer Experience:

- Meccanica. An International Journal of Theoretical and Applied Mechanics.
- Engineering Science and Technology, an International Journal.
- Journal of Bionic Engineering.
- Aerospace Science and Technology.
- European Journal of Mechanics - B/Fluids.
- Computers and Electronics in Agriculture.
- The Aeronautical Journal.
- AIAA Journal.
- Journal of Aerospace Information Systems
- Journal of Marine Science and Technology.
- Engineering Applications of Computational Fluid Mechanics.
- Journal of Fluid Mechanics.
- Applied Ocean Research.
- Aerospace – Open Access Journal.
- Algorithms – Open Access Journal.
- Computer physics communications.
- OpenFOAM journal

Professional and Editorial Memberships

- AIAA (American Institute of Aeronautics and Astronautics) Senior Member (1996-present).
- Member of the Technical Committee for Tutorials and Documentation in the OpenFOAM Governance System (2016-present).
- Member of the Editorial Advisory Board of the OpenFOAM Journal (2020-Present).

Ph. D thesis:

- “Numerical Simulation of the Unsteady Aerodynamics of Flapping Flight,” University of Genoa, 2009. For a digital copy, please refer to <http://www3.dicca.unige.it/guerrero/pubs/myphdthesis.html>

Webpage:

- http://www.dicat.unige.it/guerrero/index_clean.html

Peer-Reviewed Journal Articles:

- **J. Guerrero**, “Pressurized turbulent premixed CH₄/H₂/air flame validation using OpenFOAM,” AIP Advances 12, 075103 (2022); <https://doi.org/10.1063/5.0098715>
- M. Cavaiola, S. Olivieri, **J. Guerrero**, A. Mazzino, M. E. Rosti, “Role of barriers in the airborne spread of virus-containing droplets: A study based on high-resolution direct numerical simulations,” Physics of Fluids 34, 015104, 2022. <https://doi.org/10.1063/5.0072840>
- H. Kutkan, **J. Guerrero**, “Turbulent Premixed Flame Modeling Using the Algebraic Flame Surface Wrinkling Model: A Comparative Study between OpenFOAM and Ansys Fluent,” Fluids, 6(12), 462, Dec. 2021. <https://doi.org/10.3390/fluids6120462>
- E. Alinovi, **J. Guerrero**, “FLUBIO – An unstructured, parallel, finite-volume based Navier-Stokes and convection-diffusion like equations solver for teaching and research purposes,” SoftwareX, Volume 13, January 2021, 100655. <https://doi.org/10.1016/j.softx.2020.100655>
- **J. Guerrero**, M. Sanguineti, K. Wittkowski, “Variable cant angle winglets for improvement of aircraft flight performance,” Meccanica, Sep. 2020. <https://doi.org/10.1007/s11012-020-01230-1>
- **J. Guerrero**, L. Mantelli, S. Naqvi, “Cloud based CAD parametrization for design space exploration and design optimization in CFD,” Fluids, 5(1), 36, Mar. 2020. <https://doi.org/10.3390/fluids5010036>
- E. Daymo, A. Tonkovich, M. Hettel, **J. Guerrero**, “Accelerating Reactor Development with Accessible Simulation and Automated Optimization Tools,” Chemical Engineering & Processing – Process Intensification Journal, vol. 142, 107582, Aug. 2019. <https://doi.org/10.1016/j.cep.2019.107582>
- A. Oleksiak, L. Lefevre, P. Alonso, G. Da Costa, V. De Maio, N. Frasher, V. M. Garcia, **J. Guerrero**, S. Lafond, A. Lastovetsky, R. Reddy Manumachu, B. Muite, A.-C. Orgerie, W. Piatek, J.-M. Pierson, R. Prodan, P. Stolf, E. Sheme, S. Varrette, “Energy aware ultrascale systems,” Ultrascale Computing Systems. Chapter 5, pp. 127-188, Jan. 2019. https://doi.org/10.1049/PBPC024E_ch5
- **J. Guerrero**, M. Sanguineti, K. Wittkowski, “CFD study of the impact of variable cant angle winglets on total drag reduction,” Aerospace Journal - Special issue on Bio-Inspired Aerospace Systems, 5(4), 126, Sep. 2018. <https://doi.org/10.3390/aerospace5040126>
- F. Aqilah, M. Islam, F. Juretic, **J. Guerrero**, D. Wood, F. Ani, “Study of mesh quality improvement for CFD analysis of an airfoil,” IIUM Engineering Journal, vol. 19, no. 2, pp. 203-212, Dec. 2018. <https://doi.org/10.31436/iiuj.v19i2.905>
- **J. Guerrero**, A. Cominetti, J. Pralits, D. Villa, “Surrogate-based optimization using an open-source framework: the bulbous bow shape optimization case,” Mathematical and computational applications, 23(4), 60, Oct. 2018. <https://doi.org/10.3390/mca23040060>
- **J. Guerrero**, “Wake topology and aerodynamic performance of heaving wings,” Flight Physics – Models, Techniques and Technologies, IntechOpen, Chapter 7, Dec. 2017. <http://dx.doi.org/10.5772/intechopen.71517>

- **J. Guerrero**, C. Pacioselli, J. O. Pralits, F. Negrello, P. Silvestri, A. Lucifredi, A. Bottaro, “Erratum to: Preliminary design of a small-sized flapping UAV: I. Aerodynamic performance and static longitudinal stability,” *Meccanica* 52 (9), pp. 2245-2245, Jul. 2017. <https://doi.org/10.1007/s11012-016-0571-3>
- F. Negrello, P. Silvestri, A. Lucifredi, **J. Guerrero**, A. Bottaro, “Preliminary design of a small-sized flapping UAV. II. Kinematic and structural aspects,” *Meccanica*, 51(6), pp. 1369-1385, Jun. 2016. <https://doi.org/10.1007/s11012-015-0309-7>
- **J. Guerrero**, C. Pacioselli, J. O. Pralits, F. Negrello, P. Silvestri, A. Lucifredi, A. Bottaro, “Preliminary design of a small-sized flapping UAV. I. Aerodynamic performance and static longitudinal stability,” *Meccanica* 51 (6), pp. 1343-1367, Jun. 2016. <https://doi.org/10.1007/s11012-015-0298-6>
- A. Orchini, A. Mazzino, **J. Guerrero**, R. Festa, C. Boragno, “Flapping States of an Elastically Anchored Plate in a Uniform Flow with Applications to Energy Harvesting by Fluid-Structure Interaction,” *Physics of Fluids*, 25, 097105, 2013. <https://doi.org/10.1063/1.4821808>
- **J. Guerrero**, D. Maestro, A. Bottaro, “Biomimetic Spiroid Winglets for Lift and Drag Control,” *Comptes Rendus Mécanique*, vol. 340, Issues 1-2, pp. 67-80, Jan.-Feb. 2011. <https://doi.org/10.1016/j.crme.2011.11.007>
- **J. Guerrero**, “Wake Signature of Finite-Span Flapping Rigid Wings,” *High-Performance Computing in Science and Engineering '10: Transactions of High-Performance Computing Center, Stuttgart (HLRS) 2010*, pp. 407-427, 2011. https://doi.org/10.1007/978-3-642-15748-6_31
- **J. Guerrero**, “Wake Signature and Strouhal Number Dependence of Finite-Span Root Flapping Rigid Wings,” *Journal of Bionic Engineering*, vol. 7, Supplement 4, pp. S109-S122, Dec. 2010. [https://doi.org/10.1016/S1672-6529\(09\)60224-9](https://doi.org/10.1016/S1672-6529(09)60224-9)
- **J. Guerrero**, “Aerodynamic Performance of Cambered Heaving Airfoils,” *AIAA Journal*, vol. 48, no. 11, pp. 2694-2698, Nov. 2010. <https://doi.org/10.2514/1.J050036>
- **J. Guerrero**, “Effect of Cambering on the Aerodynamic Performance of Heaving Airfoils,” *Journal of Bionic Engineering*, vol. 6, Issue 4, pp. 398-407, Dec. 2009. [https://doi.org/10.1016/S1672-6529\(08\)60134-1](https://doi.org/10.1016/S1672-6529(08)60134-1)

Articles Submitted, Under Review or In Preparation:

- P. Silvestri, A. Canepa, **J. Guerrero**, “Design of a mechanism for roll damping and stabilization of yachts at anchor: hydrodynamic, kinematic design and structural study,” under review, submitted to the *Journal of Marine Science and Technology*.
- A. Lagazzo, M. Delucchi, **J. Guerrero**, A. Bottaro “Surface coatings to reduce skin friction: a dataset from a rotating-disk experiment,” under review, submitted to the *Journal of Data in Brief*.

Research Highlights, Media Appearances and Book Contributions:

- M. Cavaola, S. Olivieri, **J. Guerrero**, A. Mazzino, M. E. Rosti, “Direct numerical simulations show deficiencies in barriers against airborne viral spread,” *AIP Scilight*, 07 January 2022. <https://doi.org/10.1063/10.0009041>
- M. Giachi, **J. Guerrero**, J. Pralits, “La CFD come strumento predittivo in ambito sportivo per definire i regolamenti tecnici del futuro” (CFD as a predictive tool in the sports field to define the technical requirements of the future), *A & C Analisi e Calcolo* (Italian magazine), No. 96, cover page and pp. 10-11, Jan-Feb. 2020.
- A. Bottaro, **J. Guerrero**, J. Pralits, “Modelli matematici per soluzioni innovative” (Mathematical models for innovative solutions), *Il sole 24 ore* (Italian newspaper), *Sanità & Ricerca*, p. 1, June 26, 2017.
- **J. Guerrero**, “Box approfondimento 14.1 CFD: esperimenti al computer (Technical box 14.1 CFD: computational experiments), *Meccanica dei fluidi III edizione* (Fluid Mechanics III edition in Italian). McGraw Hill 2015. ISBN: 9788838615153.
- **J. Guerrero**, D. Maestro, “Biomimetic Spiroid Winglets for Lift and Drag control,” *HPC-Europa2. Science and supercomputing in Europe. Research Highlights 2011*.
- **J. Guerrero**, “Wake Signature and Aerodynamic Performance of Finite-Span Root Flapping Rigid Wings,” *HPC-Europa2. Science and Supercomputing in Europe. Research Highlights 2009*.
- A. Bottaro, J. Favier, **J. Guerrero**, D. Venkataraman, H. Wedin, “Sulla Scia di Icaro” (In the wake of Icaro), *Sapere* (Italian magazine), anno 75, numero 5(1064), pp. 66-77, Oct. 2009. <https://hal.archives-ouvertes.fr/hal-01073987>

Other Publications (non peer reviewed):

- **J. Guerrero**, “OpenFOAM advanced training. Turbulence modeling in general CFD and OpenFOAM - Theory and applications,” figshare. Media, 2022.
<https://doi.org/10.6084/m9.figshare.19310162>
- **J. Guerrero**, “OpenFOAM advanced training. Multi-phase flows modeling in general CFD and OpenFOAM - Theory and applications,” figshare. Media, 2022.
<https://doi.org/10.6084/m9.figshare.19310483>
- **J. Guerrero**, “OpenFOAM advanced training. Moving meshes, rigid body motion, adaptive mesh refinement, and overset meshes,” figshare. Media, 2022.
<https://doi.org/10.6084/m9.figshare.19310492>
- **J. Guerrero**, “DAKOTA-OpenFOAM advanced training. Design of experiments, space exploration, and numerical optimization using Dakota and code coupling Dakota-OpenFOAM,” figshare. Media, 2022.
<https://doi.org/10.6084/m9.figshare.19310495>
- **J. Guerrero**, “OpenFOAM advanced training. Basic solid modeling for CFD using Onshape and mesh generation using OpenFOAM tools,” figshare. Media, 2022.
<https://doi.org/10.6084/m9.figshare.19309760>
- **J. Guerrero**, “OpenFOAM advanced training. Introduction to the FVM method. Standard practices in general CFD with applications to OpenFOAM,” figshare. Media, 2022.
<https://doi.org/10.6084/m9.figshare.19308740>
- **J. Guerrero**, “OpenFOAM Introductory Training,” figshare. Media, 2021.
<https://doi.org/10.6084/m9.figshare.16783657>
- **J. Guerrero**, “Cloud-based CAD parametrization and image recognition for engineering design work-flows based on OpenFOAM,” Wolf Dynamics White Paper 2021-1. January 2021.
- **J. Guerrero**, L. Mantelli, S. Naqvi, “Cloud-Based Parametrization for Design Space Exploration and Design Optimization in Numerical Simulations,” Preprints 2020, 2020030150 (doi: 10.20944/preprints202003.0150.v1).
- **J. Guerrero**. “Introduction to Computational Fluid Dynamics: Governing Equations, Turbulence Modeling Introduction, and Finite Volume Discretization Basics,” (doi: 10.13140/RG.2.1.1396.4644).
- **J. Guerrero**, M. Sanguineti, K. Wittkowski, “Variable cant angle winglets for improvement of aircraft flight performance,” Preprints 2019, 2019070001 (doi: 10.20944/preprints201907.0001.v1).
- **J. Guerrero**, B. K. Muite. “Optimizing Heat Transfer in a Liquid Cooled Computer: Conduction,” COST (European Cooperation in Science and Technology) Short-Term Scientific Mission (STSM) Technical Report. 2015.
- A. Orchini, A. Mazzino, **J. Guerrero**, R. Festa, C. Boragno. “Flapping States of an Elastically Anchored Wing in a Uniform Flow,” arXiv preprint, arXiv:1202.5390v1 [physics.flu-dyn]. Feb. 2012.

Peer Reviewed Conference Contributions:

- E. Segalerba, J. Pralits, M. Quadrio, **J. Guerrero**, “Comparison of Nasal Anatomies Using Computational Fluid Dynamics,” 17th OpenFOAM workshop. Churchill College, University of Cambridge, Cambridge, UK. July 11-14, 2022.
- C. Caccia, G. Bailardi, **J. Guerrero**, D. Marini, “Fluid Structure Interaction in Marine Applications Using Open-Source Tools,” 20th International Conference on Ship and Maritime Research. University of Genoa, Genoa, Italy. June 15-17, 2022.
- **J. Guerrero**, E. Alinovi, “A Benchmarking and Comparative Study of Different Linear Solvers and Preconditioners in OpenFOAM, PETSC, and FLUBIO-PETSC,” 16th OpenFOAM workshop. University College Dublin, Dublin, Ireland. June 8-11, 2021.
- **J. Guerrero**, L. Mantelli, S. Naqvi, “Cloud-Based Cad Parametrization and Image Recognition For Support of Engineering Design Using Numerical Simulations,” 15th OpenFOAM workshop. Virginia Tech, Arlington, Virginia, USA. June 22-26, 2020.
- **J. Guerrero**, “A comparative assessment and benchmarking study of OpenFOAM® overset meshes capabilities,” 7th OpenFOAM conference. Berlin, Germany. October 15-17, 2019.
- E. Daymo, **J. Guerrero**, M. Hettel, “Accelerating microreactor development with accessible simulations,” International conference on micro reaction technology (IMRET 2018). Karlsruhe, Germany. October 21-24, 2018. Poster presentation.

- **J. Guerrero**, A. Cominetti, J. Pralits, “Shape optimization using an open-source framework: the bulbous bow case,” 5th OpenFOAM conference. Frankfurt, Germany. October 17-19, 2017.
- A. Cominetti, **J. Guerrero**, J. Pralits, “Shape optimization using an open-source framework: the bulbous bow case,” 12th OpenFOAM workshop. University of Exeter, Exeter. UK. July 24-27, 2017.
- M. Islam, F. Aqilah, F. Juretic, **J. Guerrero**, D. Wood, F. Nasir Ani, “Study of mesh quality improvement for CFD analysis of an airfoil,” The 9th International Meeting on Advances in Thermofluids IMAT. UTM, Johor, Malaysia. January 25, 2017.
- **J. Guerrero**, G. Bailardi, H. Kifle, “Visual storytelling and data visualization in numerical simulations,” 11th OpenFOAM workshop. Guimaraes, Portugal. June 26-28, 2016.
- **J. Guerrero**, B. K. Muite, “Optimizing cooling in liquid cooled computers: conduction in the rugged POD,” Summer School on Transport, Fluids and Mixing. Levico Terme, Trento. Italy. July 19-25, 2015. Poster presentation.
- **J. Guerrero**, G. Bailardi, H. Telib, R. Lyulinetsky, “An open source framework for multi-physics simulations, design space exploration and design optimization,” 10th OpenFOAM workshop. Ann Arbor, MI. USA. June 29 - July 1, 2015.
- G. Bailardi, **J. Guerrero**, “An open source framework for CFD optimization: the case of sailing yacht daggerboards,” 18th International conference on ships and shipping research – NAV. Lecco, Italy. June 24-26, 2015.
- G. Bailardi, **J. Guerrero**, D. Natali, “On the fluid dynamic design and optimization of sailing yacht hulls and appendages using a complete open source framework,” VI International conference on computational methods in marine engineering – MARINE. Rome, Italy. June 14-16, 2015.
- A. Di Terlizzi, A. Lucifredi, P. Silvestri, A. Canepa, **J. Guerrero**, A. Bottaro. “Kinematic and structural proposal and study of a new mechanism for the stabilization of yachts at anchor by flying fins,” The Twelfth International Conference on Condition Monitoring and Machinery Failure Prevention Technologies. CM 2015/MFPT 2015. Oxford, UK. June 9-11, 2015.
- M. Islam, F. Langfeldt, F. Juretic, **J. Guerrero**, D. H. Wood, “CFD Analysis of NACA4415 Airfoil with Gamma-Re-theta Model considering Natural Transition,” North American Wind Energy Academy (NAWEA) 2015 Symposium. Virginia Tech. Blacksburg, Virginia, USA. June 9-11, 2015.
- J. M. Nobrega, A. Rajkumar, C. Fernandes, L. L. Ferras, F. Habla, O. Hinrichsen, **J. Guerrero**, O. S. Carneiro, “Using OpenFOAM to Aid the Design of Extrusion Dies for Thermoplastics Profiles,” 9th OpenFOAM workshop. Zagreb, Croatia. June 23-26, 2014.
- F. Negrello, P. Silvestri, A. Lucifredi, **J. Guerrero**, A. Bottaro, “Preliminary Design of a Mechanism for Flapping Flight – Durability Analysis and Vibration Modes,” The Eleventh International Conference on Condition Monitoring and Machinery Failure Prevention Technologies. Manchester, UK. June 10-12, 2014.
- **J. Guerrero**, C. Pacioselli, J. Pralits, F. Negrello, P. Silvestri, A. Bottaro, “Preliminary design of a Small-Sized Flapping UAV. II. Aerodynamic Performance and Flight Stability,” AIMETA Conference. Turin, Italy. September 17-20, 2013.
- F. Negrello, P. Silvestri, A. Lucifredi, **J. Guerrero**, A. Bottaro, “Preliminary design of a Small-Sized Flapping UAV. I. Kinematic and Structural Aspects,” AIMETA Conference. Turin, Italy. September 17-20, 2013.
- **J. Guerrero**, “Wake Signature and Strouhal Number Dependence of Finite-Span Flapping Wings,” International Conference of Bionic Engineering ICBE. Zhuhai, China. September 14-16, 2010.
- **J. Guerrero**, “Wake Signature and Strouhal Number Dependence of Finite-Span Flapping Wings,” Transnational Access Meeting (TAM 2010) HPC-Europa2. CSC-HPC-Europa2, Helsinki, Finland. June 15-17, 2010.
- **J. Guerrero**, “Higher-Order Godunov Schemes on Overlapping Grids - Blast Wave Applications,” Third International Conference on High Order Non-Oscillatory Methods for Wave Propagation: Algorithms and Applications. University of Trento, Italy. March 30 - April 02, 2009.
- **J. Guerrero**, “Numerical Simulation of the Unsteady Aerodynamics of Flapping Flight,” 10th Teraflop Workshop. Applications and systems for future HPC. HLRS, Universität Stuttgart, Germany. March 16-17, 2009.
- **J. Guerrero**, “Higher-Order Godunov Schemes on Overlapping Grids with Adaptive Mesh Refinement,” 5th Transnational Access Meeting (TAM’08) HPC-Europa++. HLRS, Universität Stuttgart, Germany. December 15-18, 2008.
- **J. Guerrero**, “Algebraic Multigrid Methods on Overlapping Grids,” MASCOT08 - 8th Meeting on Applied Scientific Computing and Tools, Grid Generation, Approximation and Visualization. CNR-IAC, Rome, Italy. October 23-25, 2008.
- **J. Guerrero**, “CFD Study of Biologically Inspired Flapping/Oscillating Foils in Forward Motion,” 1st Peer Training Meeting on Applied Scientific Computing and Tools. CNR-IAC, Rome, Italy. October 21-22, 2008.

- **J. Guerrero**, “Efficient Treatment of Complex Geometries and Moving Bodies using Single-Block and Multi-Block Overlapping Grids,” Numerical geometry, grid generation and scientific computing (NUMGRID2008). A.A. Dorodnicyn Computing Center of the Russian Academy of Sciences, Moscow, Russia. June 10-13, 2008.
- **J. Guerrero**, “Efficient Treatment of Complex Geometries and Moving Bodies Using Overlapping Grids,” The 10th International Society of Grid Generation (ISGG) Conference on Numerical Grid Generation. IMACS – ISGG. Crete, Greece. September 16-20, 2007.
- **J. Guerrero**, “Higher-Order Godunov Schemes on Overlapping Grids,” MASCOT07 - 7th Meeting on Applied Scientific Computing and Tools, Grid Generation, Approximation and Visualization. CNR-IAC, Rome, Italy. September 13-14, 2007.
- **J. Guerrero**, “Overset Composite Grids for the Simulation of Complex Moving Geometries,” MASCOT06 - 6th Meeting on Applied Scientific Computing and Tools, Grid Generation, Approximation and Visualization. CNR-IAC, Rome, Italy. October 05-07, 2006.
- **J. Guerrero**, “Overset Composite Grids/Chimera Meshes in a Brief,” EUA4X Computational Field Simulation Days @ MASCOT06. CNR-IAC, Rome, Italy. October 06-07, 2006. Poster presentation.

Non Peer Reviewed Conference contributions:

- **J. Guerrero**, Luca Mantelli, Sahrish Naqvi, “Cloud-based CAD parametrization for engineering design workflows in OpenFOAM,” Fourth Midwest OpenFOAM User Group Meeting. Minneapolis, Minnesota, USA. October 4-5, 2019.
- **J. Guerrero**, H. Telib, “Design optimization and design exploration using an open source framework on HPC facilities,” Workshop in HPC Methods for Engineering. CINECA. Milan, Italy. June 17-19, 2015.
- **J. Guerrero**, G. Bailardi, “An Open-Source Framework for Multi-Physics Simulations and Optimization,” Workshop in HPC enabling of OpenFOAM for CFD applications. Bologna, Italy. March 25-27, 2015.

Invited speaker – Conferences:

- **J. Guerrero** (invited speaker), “Opportunities and challenges in CFD optimization: Open Source technology and the Cloud,” The sixth symposium on OpenFOAM® in Wind Energy (SOWE). Gotland, Sweden. June 13-14, 2018.
- **J. Guerrero** (invited speaker), “Agile simulations in the era of cloud computing,” HPC Day. I trend, le architetture, gli applicativi e i nuovi servizi disponibili per l'elaborazione dati ad alte prestazioni (Trends, architectures, applications and new services available for data processing and high performance). Lercici, Italy. September 26, 2017.
- **J. Guerrero** (invited speaker), “Agile simulations in the era of cloud computing,” Workshop in HPC Methods for Engineering. CINECA. Milan, Italy. June 19-21, 2017.

Training sessions delivered at conferences:

- **J. Guerrero**, “Optimization methods in CFD - An open-source approach using DAKOTA and OpenFOAM,” training session delivered at the 16th OpenFOAM workshop. University College Dublin, Dublin, Ireland.. June 8-11, 2021.
- **J. Guerrero**, “A Crash Introduction to the Finite Volume Method and Discretization Schemes in OpenFOAM,” training session delivered at the 15th OpenFOAM workshop. Virginia Tech, Arlington, Virginia, USA. June 22-26, 2020.
- **J. Guerrero**, “The grammar of overset meshes in OpenFOAM®,” Fourth Midwest OpenFOAM User Group Meeting. Minneapolis, Minnesota, USA. October 4-5, 2019.
- **J. Guerrero**, “Design of experiments, space exploration, and numerical optimization using DAKOTA and OpenFOAM®,” training session delivered at the 11th OpenFOAM workshop. University of Minho, Guimaraes, Portugal. June 26-28, 2016.

Seminars delivered:

- **J. Guerrero**, “Numerical simulations in biofluid dynamics and biomedical engineering. Eye, Nose, and Blood pump applications,” LMFA Laboratoire de Mécanique des Fluides et d’Acoustique, University of Lyon, Lyon, France. July 8, 2022. <http://lmfa.ec-lyon.fr/spip.php?article2069&lang=fr>
- **J. Guerrero**, E. Alinovi, “FLUBIO-PETSC. Yet another CFD solver – In turbulent times –,” Computational Rheology Kaizen Meetings. University of Minho, Guimaraes, Portugal. March 11, 2021.
- **J. Guerrero**, “A Crash Introduction to the Finite Volume Method and Discretization Schemes in OpenFOAM,” Computational Rheology Kaizen Meetings. University of Minho, Guimaraes, Portugal. June 19, 2020.
- **J. Guerrero**, “Visual storytelling and data visualization in numerical simulations,” University of Genoa. Department of Civil, Chemical, and Environmental Engineering. Genoa, Italy. December 11, 2015.
- **J. Guerrero**, “An open-source framework for multi-physics simulations and design exploration/optimization,” University of Tartu. Institute of Computer Science. Tartu, Estonia. May 20, 2015.
- **J. Guerrero**, “An open-source framework for multi-physics simulations and design exploration/optimization,” Tallinn University of Technology. Mechanical Engineering Department. Tallinn, Estonia. May 22, 2015.

High Performance Computing and Cloud Computing Grants:

- Amazon AWS Educate Educator Collaboration Portal (ECP) 2019.
- CINECA HPC ISCRA C Grant 2019/2020. Access to the national supercomputer Marconi. Italy.
- CINECA HPC ISCRA C Grant 2017/2018. Access to the national supercomputer Marconi. Italy.
- CINECA HPC ISCRA C Grant 2016/2017. Access to the national supercomputer Marconi. Italy.
- CINECA HPC ISCRA C Grant 2015/2016. Access to the national supercomputer Marconi. Italy.
- HLRS User project 2011/2013. Access to the national supercomputer NEC Nehalem Cluster at the High-Performance Computing Center HLRS. Stuttgart, Germany. Grant number COSTLESS/12899
- CASPUR HPC Standard Grant 2010/2011/2012. Access to CASPUR supercomputer Matrix. Italy.
- CASPUR HPC Standard Grant on GPU Cluster 2011. Access to CASPUR GPU supercomputer. Italy.
- EC - Funded HPC-Europa2 Visitor programme High-Performance Computing. Host institution: High-Performance Computing Center HLRS. Stuttgart, Germany. Period: 6 weeks, 2011.
- HLRS User project 2009/2010. Access to the national supercomputer NEC SX-9 and NEC Nehalem Cluster at the High-Performance Computing Center HLRS. Stuttgart, Germany. Grant number WTAP3DW/12832
- EC - Funded HPC-Europa2 Visitor programme High-Performance Computing. Host institution: High-Performance Computing Center HLRS. Stuttgart, Germany. Period: 6 weeks, 2009.
- EC - Funded HPC-Europa++ Visitor programme High-Performance Computing. Host institution: High-Performance Computing Center HLRS. Stuttgart, Germany. Period: 14 weeks, 2008.

Scholar, Research and Travel Grants:

- FF4EuroHPC project. Grant Agreement Number 951745. High Performance Computing for Profile Extrusion. Period: 2022-2023.
- Short-Term Scientific Mission. European Cooperation in Science and Technology COST Action IC1305. Host institution: Tartu Aoelikool, Estonia. Period: May 17-23, 2015.
- University of Trento Grant to attend HONOM 2011 international conference on high order non-oscillatory methods for wave propagation, transport and flow problems. April 2011.
- University of Trento Grant to attend HONOM 2009 international conference on high order non-oscillatory methods for wave propagation, transport and flow problems. March-April 2009.
- Marie-Curie grant for early stage researchers to attend the 10th International Society of Grid Generation (ISGG) Conference on Numerical Grid Generation. September 2007.
- University of Trento Grant to attend the second international conference on high order non-oscillatory methods for wave propagation, transport and flow problems. March 2007.
- Marie-Curie grant for early stage researchers to attend the 2nd workshop on state of the Art in Numerical Grid Generation: From Theory to Practice Workshop. October 2006.
- Recipient of the highly competitive Marie-Curie European scholarship for early-stage researchers under the FLUBIO programme. Host institution: University of Genoa - Italy. Period: 2006-2009.

Undergraduate and Graduate Theses Supervised or Co-Supervised:

- C. Zambellini, “Analisi aerodinamica del fondo di una monoposto di una Formula 1 2022 e ottimizzazione aerodinamica dei generatori di vortici tramite il metodo dell’aggiunto,” (Adjoint optimization of the vortex generators of a Formula 1 car according to the 2022 regulations), M.S. Thesis. July, 2022.
<http://www.dicat.unige.it/jpralits/Thesis/CZ.pdf>
- A. Toccafondi, “Post-Processing sull’aerodinamica del fondo di una monoposto di Formula 1 in accordo con le nuove regole in vigore dal 2022,” (Analysis of the aerodynamic performance of a Formula 1 car according to the 2022 regulations), B.S. Thesis. July, 2022.
<http://www.dicat.unige.it/jpralits/Thesis/AT.pdf>
- L. Carpaneto, “Ali Biomimetiche Bidimensionali”, (Biomimetic 2D wings.), B.S. Thesis. February, 2022.
- A. Barberis, “Analisi fluidodinamica per la progettazione di un’imbarcazione innovativa,” (Hydrodynamic design of an innovative water taxi. The Gerris Boat.), M.S. Thesis. October, 2021.
http://www3.dicca.unige.it/bottaro/Presentation%20group/Barberis_tesi.pdf
- E. Segalerba, “Ottimizzazione Aerodinamica dell’ala frontale per una monoposto di Formula1 del 2022, utilizzando il metodo dell’aggiunto,” (Adjoint Optimization of the Frontral Wing of a 2022 Formula 1 Car), M.S. Thesis. March, 2021. <http://www.dicat.unige.it/jpralits/Thesis/ES.pdf>
- A. Carlucci, M. Russo, “Analisi CFD della circolazione di argon liquid all’interno del VETO detector di DarkSide-20k,” (CFD study of the circulation of liquid argon inside the VETO detector DarkSide-20k), B.S. Thesis. October, 2020.
http://www.dicat.unige.it/bottaro/Presentation%20group/Tesi_Russo_Carlucci.pdf
- P. Badino, “Simulazioni instazionarie per la climatizzazione del teatro Carlo Felice di Genova,” (Unsteady simulations of the climatization system of the Carlo Felice Theater in Genova), B.S. Thesis. October, 2020.
<http://www.dicat.unige.it/jpralits/Thesis/PB.pdf>
- F. Tegaldo, L. Romanelli, “Variable cant angle winglets for improvement of aircraft flight performance,” M.S. Thesis. March, 2020.
- V. Costa, G. Maccio, “Approccio CFD allo studio della climatizzazione nel Teatro Carlo Felice di Genova,” (CFD Study of the climatization system of the Carlo Felice Theater in Genova), M.S. Thesis. 2019.
<http://www.dicat.unige.it/jpralits/Thesis/VCeGM.pdf>
- A. Barberis, “Calcolo del coefficiente di resistenza per un sensore di neutrini posizionato nei fondali marini del Golfo del Leone,” (Numerical simulations of the flow around an underwater neutrino detector located in the seabed of the Gulf of Leone), B.S. Thesis. 2019.
http://www3.dicca.unige.it/bottaro/Presentation%20group/Tesi_Barberis.pdf
- A. Borosio, M. Del Popolo, “Rilevamento di onde d’urto e scomposizione della resistenza aerodinamica,” (Shock wave detection and aerodynamic drag decomposition), B.S. Thesis. 2019.
http://www3.dicca.unige.it/bottaro/Presentation%20group/Borasio_DelPopolo.pdf
- R. Daniele, “Interactive visualization of Big Data and Real-time data”, B.S. Thesis. 2018.
http://www3.dicca.unige.it/bottaro/Presentation%20group/Tesi_Daniele.pdf
- M. Sanguineti, K. Wittkowski, “Winglets a Geometria Variabile,” (Winglets with Variable Geometry), B.S. Thesis. 2018.
http://www3.dicca.unige.it/bottaro/Presentation%20group/Tesi_Wittkowski_Sanguineti.pdf
- A. Cominetti, “Open-source Shape Optimization: an application to Bulbous Bow,” M.S. thesis, 2017.
<http://www.dicat.unige.it/jpralits/Thesis/AC.pdf>
- S. Pastorino, “Modeling of Spray Drying using Computational Fluid Dynamics with an Open-Source software,” M.S. Thesis, 2016.
<http://www.dicat.unige.it/jpralits/Thesis/SP.pdf>
- D. Medicina, “L’utilizzo del software CFD OpenFOAM per la modellazione numerica tridimensionale delle correnti di densità,” (The use of OpenFOAM CFD software for 3D numerical modeling of density currents), M.S. Thesis, 2014.
- A. Di Terlizzi, “Proposta e studio cinematico e strutturale di un nuovo meccanismo per la stabilizzazione all’ancora di yacht mediante pinne battenti,” (Kinematic and structural proposal and study of a new mechanism for the stabilization of yachts at anchor by flapping fins), M.S. Thesis, 2014.
- F. Ghelardi, “Sviluppo geometrico/aerodinamico della superficie di coda di un velivolo in volo planato,” (Geometric/aerodynamic development of the tail surface of a gliding aircraft), B.S. Thesis, 2012.
http://www3.dicca.unige.it/bottaro/Presentation%20group/thesis_Ghelardi.pdf
- F. Vecchia, “Study on Skybird performance improvement,” B.S. Thesis, 2012.
http://www3.dicca.unige.it/bottaro/Presentation%20group/thesis_Vecchia.pdf

- C. Pacioselli, “Sviluppo aerodinamico di un velivolo ad ala battente,” (Aerodynamic design of a flapping wing aircraft), M.S. Thesis, 2012.
http://www3.dicca.unige.it/bottaro/Presentation%20group/thesis_Pacioselli.pdf
- M. La Regina, “Modellazione e analisi di scarichi freddi in mare di una FPSO”, (Modeling and analysis of cold discharges into the sea of an FPSO), M.S. Thesis, 2012.
http://www3.dicca.unige.it/besio/Didattica/Tesi/Presentazione_LaRegina.pdf
- D. Maestro, “Simulazioni numeriche su diverse configurazioni di winglets per la riduzione della resistenza indotta,” (Numerical simulations on different configurations of winglets for the reduction of induced drag), B.S. Thesis, 2011.
http://www3.dicca.unige.it/bottaro/Presentation%20group/Tesi_Maestro.pdf
- A. Raggio, “Simulazione numerica delle azioni aerodinamiche su strutture civili,” (Numerical simulation of aerodynamic forces on civil structures), M.S. Thesis, 2010.
- F. Bavassano, “Ali biomimetiche per l'ottimizzazione della portanza,” (Biomimetic wings for lift optimization), B.S. Thesis, 2010.
http://www3.dicca.unige.it/bottaro/Presentation%20group/TESI_BAVASSANOFRANCESCO.pdf
- A. Fuccaro, “L'aerodinamica del battito di profili alari,” (Aerodynamics of flapping airfoils), M.S. Thesis, 2008.

Continuing Professional Development (training courses, summer/winter schools, and others)

- “Iterative Solvers for Linear Systems,” Leibniz Supercomputing Centre, online training course (live). September 8-10, 2021.
- “OpenFOAM: Programming CFD,” CFD Direct, online training course (live). January 26-28, 2021.
- “Large-Eddy Simulations (LES), hybrid LES-RANS, Detached-Eddy Simulations (DES) and unsteady RANS,” Online course organized by Lars Davidson Flowsim ab - Chalmers University of Technology, Sweden. November 2-4-6, 2020.
- “OpenFOAM Adjoint Optimization course,” ESI-OpenCFD, online training course (live). February 5-6, 2020.
- “Optimization in OpenFOAM,” ESI-OpenCFD classroom training, Hamburg, Germany. October 17, 2019.
- “ANSYS Fluent Fluid Structure Interaction with ANSYS Mechanical,” ANSYS, online training course (self-paced), July 12, 2019.
- “Large-Eddy Simulations and Detached-Eddy Simulations. How to use an in-House Fortran source code,” Flowsim - Chalmers University of Technology, Goteborg, Sweden. June 17-19, 2019.
- “ANSYS Fluent Meshing with Watertight Geometry Workflow,” ANSYS, online training course (self-paced), June 5, 2019.
- “ANSYS CFD (Fluent and CFX) Turbulence Modeling,” ANSYS, online training course (self-paced), May 25, 2019.
- “Opensource simulation (Scilab),” ESI-OpenCFD classroom training, Hamburg, Germany. October 25, 2018.
- “Optimization in OpenFOAM and adjoint methods,” ESI-OpenCFD classroom training, Hamburg, Germany. October 25, 2018.
- “OpenFOAM Overset course,” ESI-OpenCFD, online training course (live). February 20, 2018.
- “OpenFOAM: meshing and overset meshes,” ESI-OpenCFD classroom training, Frankfurt, Germany. October 19, 2017.
- “OpenFOAM: Programming CFD,” CFD Direct, online training course (live). October 3-4, 2017.
- “OpenFOAM: Applied CFD,” CFD Direct, online training course (live). June 26-27, 2017.
- “OpenFOAM: Programming CFD,” CFD Direct, online training course (live). April 12-13, 2016.
- “PRACE Winter School 2012. Hybrid Programming on Massively Parallel Architectures,” CINECA, Bologna, Italy. Feb 6-10, 2012.
- “Scuola Estiva di Calcolo Avanzato,” (Summer School of Advanced Numerical Computing), CASPUR, Rome, Italy. August 30 - September 10, 2010.
- “CSC Summer School in Scientific and High-Performance Computing,” CSC, Espoo, Finland. June 12-20, 2010.
- “ANSYS CFX,” ANSYS, online training course (live), November 30-December 9, 2009.
- “ANSYS Meshing,” ANSYS, online training course (live), November 9-16, 2009.
- “GAMBIT to ANSYS Design Modeler and ANSYS Meshing Transition,” ANSYS, online training course (live), October 26-30, 2009.

- “Parallel Programming Workshop - MPI, OpenMP and PETSc for beginners and advanced topics in parallel programming,” HLRS-University of Stuttgart, Stuttgart, Germany. October 6-10, 2008.
- “A Training Course on State-of-the-art in Numerical Grid Generation,” A. A. Dorodnicyn Computing Center, Russian Academy of Sciences, Moscow, Russia. June 8-9, 2008.
- “Advanced Numerical Methods for Hyperbolic Equations and Applications,” University of Trento, Department of Civil and Environmental Engineering, Trento, Italy. February 4-15, 2008.
- “Advanced Computational Fluid Dynamics,” A distance learning course offered by AIAA. June 30 – November 30, 2007.
- “Short Course on Shearography,” University of Ancona, Ancona. Italy. October 5, 2007
- “Short Course on Vibration Measurement by Full-field optical techniques,” University of Ancona, Ancona. Italy. October 4, 2007.
- “Vortices and vortex sheets: theories, numerics and applications,” CNRS - SCAT - irphe - Université de Provence Marseille - Centre IGESA, Island of Porquerolles, Hyeres, France. June 4-10, 2007.
- “Introduction to Fluid Structure Interaction. Numerical Aspects and Coupling Software with Applications,” Queen’s University Belfast, Belfast, Northern Ireland, UK. January 25-26, 2007.
- “Numerical Methods for Hyperbolic Equations and Applications,” University of Trento, Department of Civil and Environmental Engineering, Trento, Italy. Feb. 2007.
- “Cours de formation au logiciel PALM_MP. Projet d'assimilation par logiciel multi-methodes,” CERFACS - Centre Europeen de Recherche et de Formation Avancee en Calcul Scientifique, Toulouse, France. January 22-24, 2007.
- “Unsteady Simulations for Industrial Flows: LES, DES, hybrid LES/RANS and URANS,” Chalmers University of Technology, Goteborg, Sweden. October 23-25, 2006.
- “State of the Art in Numerical Grid Generation 2: From Theory to Practice Workshop,” CNR-IAC, Rome, Italy. October 02-06, 2006.
- “CFD Summer School. Foundations and advanced lectures on industrial CFD,” EPSRC University of Nottingham, Nottingham, UK. June 19-23, 2006.