

GIANLUCA IACCARINO, PhD

Professor: Mechanical Engineering, Stanford University
 Director: Institute for Computational Mathematics, Stanford University
 Co-Founder: Cascade Technologies Inc.
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**Employment History**

2018 – present	Director, Institute for Computational Mathematics, Stanford University, Stanford, CA
2014 – present	Director, Exascale Computing Engineering Center, Stanford CA
2007 – present	Professor, Mechanical Engineering Department, Stanford University, Stanford, CA
2000 – present	co-Founder and Member of the Board of Directors, Cascade Technologies Inc., Palo Alto, CA
1998 – 2007	Research Engineer, NASA & Stanford University, Stanford, CA
1993 – 1998	Research Scientist, CIRA, Italian Center for Aerospace Research, Italy

Education

2005	Ph.D.	Computational Mechanics, Politecnico di Bari, Italy
1993	Laurea	Aeronautical Engineering, University of Naples, Italy

Awards and Honors

- APS Fellow (elected), November 2019
- TUM Ambassador, Technical University of Munich 2018
- ASME IMECE Best MEMS Paper Award, November 2017
- AIAA Jefferson Goblet Best Paper Award, January 2017
- ASME Turbo Expo 2016 Best Paper Award, June 2016
- William R. and Inez Kerr Bell Faculty Scholar, Stanford University, January 2014
- Medal Honoring Italians Abroad, Sorrento (NA), 2013
- Associate Fellow, American Institute of Aeronautics and Astronautics, 2012
- Presidential Early Career Award for Science and Engineering (PECASE), September 2010
- Humboldt Fellow, November 2009
- Best paper at the Automotive CFD Conference, Frankfurt, Germany, July 2007
- Terman Fellow, Stanford University, March 2007

Professional ServicesEditor

- Guest Editor, International Journal of Uncertainty Quantification, 2019-present
- Associate Editor, Computers & Fluids, 2018-present
- Associate Editor, Journal of Computational Physics, 2014-2021
- Associate Editor, Flow, Turbulence & Combustion, 2015-present
- Associate Editor, ASME Applied Mechanics Review, 2013- 2017

Management & Organization Responsibility

- Member of the Stanford School of Engineering Executive Committee (EXCOM), 2018-present
- Director, Thermal & Fluid Sciences Industrial Affiliates (TFSA) Program, Stanford 2010-present
- Director, Predictive Science Academic Alliance Program (PSAAP) II, Stanford 2014-present
- Member of the Mechanical Engineering Department Advisory Committee (AdCom), 2013-present
- Member of the Mechanical Engineering Department Graduate Curriculum Committee, 2011-2015
- Member of the Mechanical Engineering Department Strategic Planning Committee, 2007-2015
- Member of the AIAA Non-Deterministic Approaches Technical Committee, 2010-present
- Member of the Center for Turbulence Research Steering Committee, 2006-present
- Member of the Board of Directors, Cascade Technologies Inc, 2000-present

Conference Organizer

1. IACM Conference “Mechanistic Machine Learning and Digital Twins for Computational Science, Engineering & Technology”, Member of the Organizing Committee, Sept. 2021.
2. Stanford Xpo Research Symposium, Stanford CA May 2020
3. PASC20 Minisymposium Organizer, High Performance Computing for High-Fidelity Simulations, Feb. 2020
4. ECCM ECFD 2018, Minisymposium on “Multifidelity Uncertainty Quantification Strategies for Computational Fluid Dynamics Applications”, June 2018
5. UMEMA18 “Uncertainty Modeling for Engineering Applications”, Standing Organizing Committee, 2018
6. SIAM UQ Conference, Minisymposium on Multifidelity Strategies for Uncertainty Analysis, April 2018
7. Thermal and Fluid Science Industrial Affiliates Conference and Workshop, Stanford, CA, February 1-2, 2018.
8. SIAM Computational Science and Engineering, Minisymposium on Uncertainty Quantification, Atlanta, March 2017
9. SIAM Workshop on Parameter Space Dimensional Reduction, Pittsburgh, July 2017
10. Thermal and Fluid Science Industrial Affiliates Conference and Workshop, Stanford, CA, January 329-31, 2017
11. Uncertainty Quantification in Combustion Science, Central Paris, France, March, 2016
12. Thermal and Fluid Science Industrial Affiliates Conference and Workshop, Stanford, CA, February 3-5, 2016
13. Immersed Boundary Method, Lectures Series, INRIA Bordeaux, France, 2016
14. APS/DFD, (co-chair), San Francisco, CA, November 23-25, 2014
15. Thermal and Fluid Science Industrial Affiliates Conference and Workshop, Stanford, CA, February 5-7, 2014.
16. International Workshop on UQ in Fluid Simulations, Bordeaux, France, Dec. 16-18, 2013.
17. General Chair (elected), AIAA XVI Non-Deterministic Approaches, Boston, MA, April 2013.
18. Symposium on “UQ in Engineering Applications,” SIAM UQ Conference, , NC, April 2012.
19. Thermal and Fluid Science Industrial Affiliates Conference and Workshop, Stanford, CA, February 12-16, 2013.
20. Technical Chair (elected), AIAA XV Non-Deterministic Approaches, Honolulu, HI, April 2012.
21. Thermal and Fluid Science Industrial Affiliates Conference and Workshop, Stanford, CA, February 8-10, 2012.
22. UQ in Computational Fluid Dynamics, VKI Lecture Series, Brussels, Belgium, October 2011.
23. RTO/ESA Short Course on “UQ in Hypersonics,” Bruges, Belgium, May 13-14, 2011.
24. RTO/ESA Short Course on “UQ in High Speed Flows,” Stanford, CA April 15-16, 2011.
25. Thermal and Fluid Science Industrial Affiliates Conference and Workshop, Stanford, CA, February 2-5, 2011.

Other Services

- Reviewer for NSF Graduate Fellowship and NSF Software Institutes, 2014
- Reviewer for the Air Force Computational Mathematics Program, 2012
- Member of the DoE CSGF Fellowship Panel, 2012, 2013, 2014
- Reviewer for the DoE ASCR Program and SCIDAC Institutes, 2012-present
- Reviewer for Swiss National Super-Computing Center (CSCS), 2013-present
- Reviewer for Cineca Italian National Super-Computing Center, 2011-present
- PhD Exam Opponent at KTH Stockholm, Politecnico di Milano, Uppsala University, TU Delft
- Member of PhD Defense Committee at TU Delft, TU Munich, ETH Zurich, UPMC Paris, University of Oslo, University of Padova, University of Naples, Politecnico di Bari

Research Funding

Current (about \$4M/year total funding secured till 2025)

1. U.S. Department of Energy - "Predicting Reliability of Laser-Ignition for Deep Space Rocket Mission – Exascale Computations Engineering Center" (started on 9/2020 for 5 years)
2. Los Alamos National Lab. - "Uncertainty Quantification in Buoyancy-Driven Turbulent Flows" to be completed 6/2022

Completed (about \$21M of total funding since 2007)

1. U.S. Department of Energy - "Predictive Simulations of Particle-laden Turbulence in a Radiation Environment – Exascale Computations Engineering Center" completed 9/2020
2. US Department of Defense – "High-Performance Computing in Biomedicine Applications – Particle Deposition in the Lungs" - Army High Performance Computing Research Center
3. National Science Foundation - "Simulations of Particle Sedimentation in Non-Newtonian Fluid"
4. Lawrence Livermore National Laboratory - "Algorithms for uncertainty"
5. Doosan Heavy Industries – "Immersed Boundary Simulations of Fluid Structure Interactions"
6. NASA - "Structure Based Modeling of Three-Dimensional Separated Flows"
7. U.S. Department of Energy - "Large-Scale Uncertainty and Error Analysis in Wind Turbine Applications"
8. U.S. Department of Energy: "Predictive Simulations of Multi-Physics Flow Phenomena"
9. King Abdullah University of Science and Technology - "Tracking Uncertainties in Computational Modeling"
10. U.S. Department of Energy - "High-Performance Embedded Hybrid Methodology for Uncertainty Analysis"

Equipment (about \$5M of total funding since 2007)

1. NVIDIA – DGX1 and DGX2 Systems for Data Science at Scale
2. NSF - "MRI-R2: Acquisition of a Hybrid CPU/GPU for Multidisciplinary Studies in Transport Physics with Uncertainty"
3. Ansys Computational Engineering Lab – 35 Workstations for Teaching in the Department of Mechanical Engineering

Teaching Activities

ME70 Introduction to Fluids Engineering	Required undergraduate class in foundational topics in fluid mechanics
ME123 Computational Engineering	Required undergraduate class on multidisciplinary engineering simulations
ME351 Fluid Mechanics	Advanced graduate class on fluid mechanics topics focus on inviscid flows and selected topics in viscous flow analysis
ME469 Computational Fluid Mechanics	Advanced graduate class on numerical methods for Navier-Stokes equations focused on low-speed flows and turbulence simulations.
ME470 Uncertainty Quantification	Graduate Class on computational and statistical methods to characterize and quantify the effect of uncertainties in computational science
CME200 Computational Linear Algebra	Foundational class on theory and algorithms for large scale linear algebra
CME206 Numerical Methods in Engineering	Foundational class on computational mathematics for engineering
CME217 Analytics Accelerator	Graduate Class on interdisciplinary analysis using data science tools
CME300 First Year Seminar Series	Seminars and Discussions of various research topics in computational mathematics and engineering applications
CME500 AI in Real Life/AI for Good	Seminar series on AI advancements in society and engineering
ENG298 Fluid Mechanics Seminars	Seminar series on Topics in Fluid Mechanics Research

Doctoral Students (31)

Name	PhD Thesis Title	Year
Mark Benjamin	Eigenspace perturbation for uncertainty in Large Eddy Simulations	ongoing
Henry Collis	Polynomial chaos for multiphase flows	ongoing
Leah Reader	Numerical flow simulations on accelerators and hybrid architectures	ongoing
Jani Adcock	Hybrid RANS-LES simulations for wind energy applications	ongoing
Jan Heyse	Data-driven approaches to uncertainty quantification	2021
Laura Lyman	Theory and implementation of multiset polynomial chaos expansions	2021
Hilario Torres	Simulations of particle laden turbulence in a radiation environment using heterogeneous high performance computing systems	2021
Heather Pacella	Modern Programming Models for GPU-accelerated Heterogeneous Supercomputers: Computational Fluid Dynamics and Data Compression	2021
Ohiremen Dibua	Validating models of a physical system with experiments: electrostatic actuators in electrolytes	2020
Zach del Rosario	Precision margin: first-principles margins for aircraft design under uncertainty	2019
Sreenath Krishnan	Numerical simulation of viscoelastic particulate flows with immersed boundary	2017
Hooria Abdehkakha	Computational modeling of wall-bounded particle-laden turbulent flows	2017
Ari Frankel	Modeling radiation transport in turbulent particle-laden media	2017
Saman Ghili	Polynomial and rational approximation techniques in uncertainty quantification	2016
Nicolas Kseib	Data driven and uncertainty aware physical modeling	2016
Alejandro Campos	Advances in structure-based modeling of turbulent flows	2016
Per Pettersson	Polynomial chaos methods for hyperbolic partial differential equations: numerical techniques for fluid dynamics problems with uncertainties	2015
Akshay Mittal	Uncertainty propagation in multiphysics systems	2015
Eleanor Lin	Validation and sensitivity analysis of particle deposition in human airways	2014
Mike Emory	Estimating model-form uncertainty in Reynolds-averaged Navier-Stokes	2014
Sungmin Ryu	Large-eddy simulation of a body-junction flow	2014
Sourav Padhy	Particles sedimenting in viscoelastic drilling muds	2013
Gary Tang	Methods for high dimensional uncertainty quantification: regularization, sensitivity analysis, and derivative enhancement	2013
John Axerio Cilies	Predicting formula 1 tire aerodynamics: uncertainties and optimization	2012
David Phillips	Modeling scalar dispersion in urban environments	2012
Tonkid Chantramsi	Pade-legendre method for uncertainty quantification in fluid dynamics	2011
David Richter	The effects of viscoelasticity on the transitioning cylinder wake	2011
Qiqi Wang	Uncertainty quantification for unsteady fluid flow with adjoint approaches	2009
Paul Constantine	Spectral methods for parameterized matrix equations	2009
Songwon Kang	An improved immersed boundary method for computation of turbulent flows with heat transfer	2008
Sandy Chang	Small-scale flow variability inside branched coral colonies: computations and experimental validation	2007

Postdoctoral Fellows (31)

Name	Research Area	Year
Kazuki Maeda	High Performance Computing, High Speed Flow, Numerical Methods	ongoing
Jonathan Wang	Laser Ignition Modeling, Combustion, Fluid Mechanics	ongoing
Charlelie Laurent	High Performance Computing, Numerical Methods, Data-driven modeling	ongoing
Jeff Hokansen	Uncertainty Quantification, Ensemble Simulations, Data-driven modeling	ongoing

Thiago Teixera	High Performance Computing, Ensemble Simulations	ongoing
Javier Urzay	Combustion, Fluid Mechanics, Laser Ignition Modeling	ongoing
Aashwin Mishra	Turbulence Modeling, Uncertainty Quantification, Data-driven modeling	ongoing
Wouter Edeling	Uncertainty Quantification, Turbulence Modeling	2020
Lluis Jofre	High Performance Computing, Uncertainty Quantification, Turbulence	2020
Gianluca Geraci	Uncertainty Quantification	2019
Mahdi Esmaily	High Performance Computing, Numerical Methods	2018
Rene Pecnik	Turbulence Modeling, Uncertainty Quantification	2017
Catherine Gorle	Turbulence Modeling, Uncertainty Quantification	2017
Ivan Bermejo	High Performance Computing, High Speed Flows	2016
Olaf Marxen	Transition Modeling, Combustion	2016
Jorge Bernate	Aerosol Deposition, Uncertainty Quantification	2015
Daniele Schiavazzi	Uncertainty Quantification	2015
Pranay Seshadri	Uncertainty Quantification, Optimization	2015
Jeroen Witteveen	Uncertainty Quantification, Optimization	2014
Riccardo Rossi	Turbulence Modeling	2013
Erin Hult	Turbulence Modeling, Uncertainty Quantification	2012
Alireza Doostan	Uncertainty Quantification	2010

Books

- Z. del Rosario, G. Iaccarino, “All Models Are Uncertain” – to be published November 2023.
 P. Pettersson, G. Iaccarino, J. Nordstrom, “Polynomial Chaos Methods for Hyperbolic Partial Differential Equations – Numerical Techniques for Fluid Dynamics Problems under Uncertainty” Springer, ISBN 978-3-319-10713-4, 2015.
 G. Iaccarino, “Computational Engineering”, Stanford Press, 6/2020.

Journal Publications (159)

1. E Saetta, R Tognaccini, G Iaccarino, "Can Autencoders Predict Stall?", J. of Computational Fluid Dynamics, arXiv preprint arXiv:2207.03424, to appear 2023,
2. J. Hokanson, G. Iaccarino, A. Doostan, “Simultaneous Identification and Denoising of Dynamical Systems”, SIAM J. on Scientific Computing, Vol. 44, 2023
3. Q Ze, S Wu, J Dai, S Leanza, G Ikeda, PC Yang, G Iaccarino, RR Zhao, "Spinning-enabled Wireless Amphibious Origami Millirobot", Nature Communication, Vol. 13, 2022
4. JAK Horwitz, G Iaccarino, JK Eaton, A Mani, "The discrete Green's function paradigm for two-way coupled Euler–Lagrange simulation", Journal of Fluid Mechanics Vol. 931, 2022
5. K Maeda, T Teixeira, JM Wang, JM Hokanson, C Melone, M Di Renzo, G. Iaccarino, "An integrated heterogeneous computing framework for ensemble simulations of laser-induced ignition", arXiv preprint arXiv:2202.02319, to appear Software X, 2022
6. J. Heyse, A. Mishra, G. Iaccarino, "Data-driven Eigenspace perturbations for Turbulence Modeling Uncertainty", accepted in Journal of the Global Power and Propulsion Society, 2021
7. L Lyman, G Iaccarino, " Second Order Moments of Multivariate Hermite Polynomials in Correlated Random Variables", accepted in SIAM Journal of Uncertainty Quantification, 2021
8. H. Pacella, A. Dunton, A. Doostan, G. Iaccarino, “Task-Parallel In-Situ Compression of Large-Scale Computational Fluid Dynamics Data”, to appear in Computer and Fluids, 2021
9. Z. del Rosario, RW Fenrich, G Iaccarino, "When are design allowable conservative?", AIAA J., Vol 3, pp 1-13, 2021
10. H. Torres, M. Papadakis, L. Jofre, W. Lee, A. Aiken, G. Iaccarino, “Soleil-X: Turbulence, Particles, and Radiation in the Regent Programming Language”, to appear in Elsevier SoftwareX. 2021
11. K. Duraisamy, G. Iaccarino, H. Xiao “Turbulence modeling in the age of data”, Annual Review of Fluid Mechanics, Vol 51, pp. 357-377, 2020
12. L. Jofre, M. Papadakis, PT Roy, a. Aiken, G. Iaccarino, "Multifidelity modeling of irradiated particle-laden turbulence subject to uncertainty", International Journal for Uncertainty Quantification, Vol. 10 (6), 2020
13. M Esmaily, L Villafane, AJ Banko, G Iaccarino, JK Eaton, A Mani, "A benchmark for particle-laden turbulent duct flow: A joint computational and experimental study", International Journal of Multiphase Flow Vol. 132, pp. 103410, 2020
14. AA Mishra, J Mukhopadhaya, J Alonso, G Iaccarino, "Design exploration and optimization under uncertainty", Physics of Fluids 32 (8), pp. 085106, 2020
15. C. Adcock, Y. Ye, L. Jofre, G. Iaccarino, "Multilevel Monte Carlo Sampling on Heterogeneous Computer Architectures", International Journal for Uncertainty Quantification, Vol. 10 (6), 2020
16. MS Eldred, G. Geraci, G. Iaccarino, "Foreword: Special Issue on Multilevel-Multifidelity Approaches for Uncertainty Quantification", International Journal for Uncertainty Quantification, Vol. 10 (6), 2020
17. L. Lyman, G. Iaccarino, "Extending bluff-and-fix estimates for polynomial chaos expansions", Journal of Computational Science, Vol 50, 2020.
18. O. Ålund, G. Iaccarino, J. Nordström, "Learning to differentiate", Journal of Computational Physics, Vol. 424, 2020
19. AM Dunton, L Jofre, G Iaccarino, A Doostan, "Pass-efficient methods for compression of high-dimensional turbulent flow data", Journal of Computational Physics, pp. 109704, Vol 3., 2020.
20. CF Silva, P Pettersson, G Iaccarino, M Ihme, "Uncertainty quantification of combustion noise by generalized polynomial chaos and state-space models", Combustion and Flame, Vol. 217, pp. 113-130, 2020
21. L Jofre, ZR del Rosario, G Iaccarino, “Data-driven dimensional analysis of heat transfer in irradiated particle-laden turbulent flows“, International Journal of Multiphase Flow, 103198, 2020
22. J. Yuan, A. A. Mishra, G. Brereton, G. Iaccarino, M. Vartdal, “Single-point structure tensors in turbulent channel flows with smooth and wavy walls”, Physics of Fluids, Vol 31(12), 2019

23. HR Fairbanks, L Jofre, G Geraci, G Iaccarino, A Doostan, “Bi-fidelity approximation for uncertainty quantification and sensitivity analysis of irradiated particle-laden turbulence”, *Journal of Computational Physics*, Vol. 402, pp. 108996, 2019
24. Z del Rosario, G Iaccarino, RW Fenrich, “Fast Precision Margin with the First-Order Reliability Method” *AIAA Journal*, Vol 57(11), pp. 5042-5053, 2019
25. LW Cook, AA Mishra, JP Jarrett, KE Willcox, G Iaccarino, “Optimization under turbulence model uncertainty for aerospace design”, *Physics of Fluids*, Vol 31(10), pp. 105111, 2019
26. TS Geisler, MV Majji, JS Kesavan, VJ Alstadt, ESG Shaqfeh, G Iaccarino, “Simulation of microparticle inhalation in rhesus monkey airways”, *Physical Review Fluids*, Vol 4(8), pp. 083101, 2019
27. AA Mishra, G Iaccarino, “Theoretical analysis of tensor perturbations for uncertainty quantification of Reynolds averaged and subgrid scale closures”, *Physics of Fluids*, Vol 31(7), pp 075101, 2019
28. Z del Rosario, RW Fenrich, G Iaccarino, “Cutting the double loop: Theory and algorithms for reliability-based design optimization with parametric uncertainty”, *International Journal for Numerical Methods in Engineering*. Vol. 118(12), pp. 718-740, 2019
29. L Jofre, SP Domino, G Iaccarino, “Eigensensitivity analysis of subgrid-scale stresses in large-eddy simulation of a turbulent axisymmetric jet”, *International Journal of Heat and Fluid Flow*, Vol. 77, pp. 314-335, 2019
30. RL Thompson, AA Mishra, G Iaccarino, W Edeling, L Sampaio, “Eigenvector perturbation methodology for uncertainty quantification of turbulence models”, *Physical Review Fluids*, Vol. 4(4), pp 044603, 2019
31. Z. del Rosario, M. Lee, G. Iaccarino, “Lurking Variable Detection via Dimensional Analysis”, *SIAM/ASA Journal on Uncertainty Quantification*, Vol 7 (1), 232-259, 2019
32. C Górlé, S Zeoli, M Emory, J Larsson, G Iaccarino, “Epistemic uncertainty quantification for Reynolds-averaged Navier-Stokes modeling of separated flows over streamlined surfaces”, *Physics of Fluids*, Vol. 31 (3), 035101, 2019
33. P. Seshadri, G. Iaccarino, T. Ghisu "Quadrature Strategies for Constructing Polynomial Approximations", *Uncertainty Modeling for Engineering Applications*, 1-25, 2019
34. A. A. Mishra, K. Duraisamy, G. Iaccarino "Estimating uncertainty in homogeneous turbulence evolution due to coarse-graining", *Physics of Fluids* 31 (2), 025106, 2019
35. A. Saadat, C. J. Guido, G. Iaccarino, ESG Shaqfeh “Immersed-finite-element method for deformable particle suspensions in viscous and viscoelastic media”, *Physical Review E* 98 (6), 063316, 2018
36. A. A. Mishra, J Mukhopadhaya, G Iaccarino, J Alonso "Uncertainty Estimation Module for Turbulence Model Predictions in SU2", *AIAA Journal*, 1-12, 2018
37. O. L. Dibua, S. Ramsurrun, A. Mani, B. L. Pruitt, G. Iaccarino “Hierarchy of models for electrostatic comb-drive actuators in electrolytes”, *Journal of Micromechanics and Microengineering* 28 (12), 125013, 2018
38. W. Edeling, P. Cinnella, G. Iaccarino, “Data-free and data-driven RANS predictions with quantified uncertainty”, *Flow, Turbulence & Combustion*, Vol. 100(3), pp. 593-616, 2018
39. M. Rahmani, G. Geraci, G. Iaccarino, A. Mani “Effect of polydispersity on radiative heat transfer in particle-laden turbulent flows”, *International Journal Multiphase Flows*, Vol. 104, pp. 42-59, 2018
40. M. Esmaily L.Jofre A.Mani G.Iaccarino “A scalable geometric multigrid solver for nonsymmetric elliptic systems with application to variable-density flows” *J. Computational Physics* Vol 357, pp. 142-158. 2018
41. L Jofre, S P Domino, G. Iaccarino “A framework for characterizing structural uncertainty in large-eddy simulation closures”, *Flow, Turbulence and Combustion*, Vol. 100(2), pp. 341-363, 2018
42. S. Manoorkar, S. Krishnan, ESG Shaqfeh, G.Iaccarino, Gianluca; JF Morris, “Suspension flow through an asymmetric T-junction”, *Journal of Fluid Mechanics*, Vol. 844, pp. 147-273, 2018
43. A Frankel, D Sharp, G Iaccarino “Application of QMU to the design of a nuclear waste storage tank” *Nuclear Engineering and Design*, Vol .324, pp. 379-389, 2017
44. A Frankel, G Iaccarino, A Mani “Optical depth in particle-laden turbulent flows” *Journal of Quantitative Spectroscopy and Radiative Transfer*, Vol 201, pp. 20-16, 2017
45. G. Iaccarino, A. A. Mishra, and S. Ghili. Eigenspace perturbations for uncertainty estimation of single-point turbulence closures. *Physical Review Fluids*, 2(2):024605, 2017.
46. W L Murch, S Krishnan, E SG Shaqfeh, G Iaccarino, “Growth of viscoelastic wings and the reduction of particle mobility in a viscoelastic shear flow”, *Physical Review Fluids* Vol 2 (10), pp 103302, 2017
47. S Ghili, G Iaccarino, Least “Squares Approximation of Polynomial Chaos Expansions With Optimized Grid Points” *SIAM Journal on Scientific Computing* Vol 39(5), pp A1991-A2019, 2017
48. J A Bernate, T S Geisler, S Padhy, ESG Shaqfeh, G Iaccarino, “Study of the flow unsteadiness in the human airway using large eddy simulation” *Physical Review Fluids*, Vol 2 (8), pp 083101, 2017

49. H. R. Fairbanks, A. Doostan, C. Ketelsen, G. Iaccarino, "A low-rank control variate for multilevel Monte Carlo simulation of high-dimensional uncertain systems" *J. of Computational Physics*, Vol 341, pp 121-139, 2017
50. A. Frankel, G. Iaccarino, "Efficient Control Variates for Uncertainty Quantification of Radiation Transport", *Journal of Quantitative Spectroscopy and Radiative Transfer*, Vol. 189, pp. 398-406, 2017
51. S. Ryu, G. Iaccarino, "Vortex-induced rotations of a rigid square cylinder at low Reynolds numbers", *J. Fluid Mechanics*, Vol. 813, pp. 482-507, 2017
52. A. Frankel, G. Iaccarino, A. Mani, "Convergence of the Bouguer–Beer law for radiation extinction in particulate media", *Journal of Quantitative Spectroscopy and Radiative Transfer*, Vol. 182, pp. 45-54, 2016
53. A. A. Mishra, G. Iaccarino, K. Duraisamy, "Sensitivity of flow evolution on turbulence structure", *Physical Review Fluids* 1 (5), 052402, 2016
54. A. Campos, K. Duraisamy, G. Iaccarino, "A segregated explicit algebraic structure-based model for wall-bounded turbulent flows", *International Journal of Heat and Fluid Flow*, Vol. 61, pp 284-297, 2016
55. A. Campos, K. Duraisamy, G. Iaccarino, "Eulerian formulation of the interacting particle representation model of homogeneous turbulence", *Physics Review Fluid*, Vol. 1(6), 2016.
56. A. Mittal, X. Cen, C. Tong, G. Iaccarino, "A Flexible UQ Framework for Multiphysics Systems", *SIAM Journal of Uncertainty Quantification*, Vol. 4(1), 218-243, 2016
57. P. Seshadri, P. Constantine, G. Iaccarino, G. Parks "A density-matching approach for optimization under uncertainty", *Computer Methods in Applied Mechanics and Engineering*, Vol. 35, pp. 562-578, 2016.
58. S. Ryu, M. Emory, G. Iaccarino, "LES of a Body Junction Flow" *AIAA Journal*, Vol. 54(3), 793-804, 2016.
59. P. Constantine, M. Emory, J. Larsson, G. Iaccarino, "Exploiting Active Subspaces to Quantify Uncertainty in the Numerical Simulation of the HyShot II Scramjet", *Journal of Computational Physics* Vol. 302, pp.1-20, 2016
60. G. Geraci, P.M. Congedo, R. Abgrall, G. Iaccarino, "High-order statistics in global sensitivity analysis: Decomposition and model reduction", *Computer Methods in Applied Mechanics and Engineering* Vol. 301, pp 80-115, 2016
61. S. Ryu, O. Marxen, G. Iaccarino, "A comparison of laminar-turbulent boundary-layer transitions induced by deterministic and random oblique waves at Mach 3" *International Journal of Heat and Fluid Flow* Vol. 56, pp 218-232, 2015
62. G. Geraci, P.M. Congedo, R. Abgrall, G. Iaccarino, "A Novel Weakly-Intrusive Non-Linear Multiresolution Framework for Uncertainty Quantification in Hyperbolic Partial Differential Equations", *SIAM Journal of Scientific Computing*, Vol 33, pp. 1-48, 2015.
63. C. Gorle, C. Garcia-Sanchez, G. Iaccarino, "Quantifying Inflow and RANS Turbulence Model-form Uncertainties for Wind Engineering Flows", *Journal Wind Engineering and Industrial Aerodynamics*, Vol. 144, pp. 202-212, 2015.
64. Abgrall, P.M. Congedo, G. Geraci, G. Iaccarino, "An Adaptive Multiresolution Semi-Intrusive Scheme for UQ in Compressible Fluid Problems", *International Journal Numerical Methods in Fluids*, Vol. 78 (10), pp. 595-637, 2015.
65. S. Ghili, G. Iaccarino, "Reusing Chebyshev points for polynomial interpolation", *Numerical Algorithms*, Vol. 35, pp. 1017-1036, 2014.
66. G. Tang, G. Iaccarino, "Subsampled Gauss Quadrature Nodes for Estimating Polynomial Chaos Expansions", *SIAM Journal of Uncertainty Quantification*, Vol. 2(1), pp.423-443, 2014
67. O. Marxen G. Iaccarino, T.E. Magin, "Direct Numerical Simulations of Hypersonic Boundary Layer Transition with finite Rate Chemistry", *Journal of Fluid Mechanics*, Vol. 755, pp. 122,134, 2014
68. S. Ryu, G. Iaccarino, "A Subgrid Scale Model based on the Volumetric Strain Stretching", *Physics of Fluids*, Vol. 26(6), pp. 065107, 2014
69. C. Gorle, J. Larsson, M. Emory, G. Iaccarino, "The Deviation from Parallel Shear Flow as an Indicator of Linear Eddy-Viscosity Model Inaccuracy", *Physics of Fluids*, Vol. 26(5), pp. 051702, 2014
70. D. Schiavazzi, F. Coletti, G. Iaccarino, J. Eaton, "A Matching Pursuit Approach to Solenoidal Filtering of Three-Dimensional Velocity Measurements", *Journal of Computational Physics*, Vol. 263, pp. 206-221, 2014
71. S. Chang, G. Iaccarino, F. Ham, C. Elkins, S. Monismith, "Local Shear and Mass Transfer on Individual Coral Colonies: Computations in Unidirectional and Wave Driven Flows", *Journal of Geophysical Research: Oceans*, Vol. 119 (4), pp. 2599-2614, 2014
72. J. P. Johnson, G. Iaccarino, K.H. Chen, B. Khalighi, "Simulations of High Reynolds Number Air Flow Over the NACA-0012 Airfoil Using the Immersed Boundary Method", *Journal of Fluids Engineering*, Vol. 136(4), pp. 040901, 2014
73. J. Urzay, N. Kseib, D.F. Davidson, G. Iaccarino, R.K. Hanson, "Uncertainty-quantification analysis of the effects of residual impurities on hydrogen–oxygen ignition in shock tubes", *Combustion and Flame*, Vol. 161(1), pp. 1-15, 2014
74. P. Pettersson, G. Iaccarino, J. Nordstrom, "A stochastic Galerkin method for the Euler equations with Roe variable transformation", *Journal of Computational Physics*, Vol. 257, pp. 481-500, 2014

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