

## MARCO GIOVANNI GIOMETTO

Civil Engineering and Engineering Mechanics Department, Columbia University  
500 West 120th Street, New York, NY 10027

Email: [mg3929@columbia.edu](mailto:mg3929@columbia.edu)

Web: <https://efpl.engineering.columbia.edu>

### HIGHER EDUCATION

*PhD Mechanical Engineering, 2016*

École Polytechnique Fédérale de Lausanne, Switzerland

*PhD Civil Engineering, 2014*

Florence and Braunschweig Universities, Italy and Germany

*MS Civil Engineering, 2010*

Padova University, Italy

*BS Civil Engineering, 2007*

Padova University, Italy

### EMPLOYMENT RECORD

*Assistant Professor, 2018 – present*

Columbia University, Department of Civil Engineering & Engineering Mechanics

*Amazon Visiting Academic, 2021 – present*

Amazon.com Inc., Amazon Prime Air Program

*Senior Research Scientist, 2018 – 2021*

Amazon.com Inc., Amazon Prime Air Program

*Postdoctoral Fellow, 2017 – 2018*

Stanford University, Department of Mechanical Engineering, Center for Turbulence Research

*Postdoctoral Fellow, 2016 – 2017*

University of British Columbia, Department of Civil and Environmental Engineering

### HONORS AND AWARDS

- *Finalist, ISSNAF Young Investigator Awards for Research in Sustainability, 2021.* The Italian Scientists & Scholars in North America Foundation (ISSNAF) annually awards the Young Investigator Awards in various disciplines to outstanding, early-career Italian researchers working in the United States or Canada, in recognition of their significant and innovative contributions to their field of research.
- *Provost Diversity Award, 2021.* This small-grants program is awarded by the Provost's Office at Columbia University to support diversity plans across schools, by advancing the career success of outstanding junior faculty who contribute to the diversity goals of the University via their research, teaching, and mentoring activities.
- *Postdoctoral Fellowship, 2017.* Center for Turbulence Research, Stanford University.

- *EDME Award for the Best Ph.D. Thesis in Mechanics, 2016*. Each year, the École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, doctoral program in mechanics grants the EDME Award for the best thesis work in its program.
- *Best Oral Presentation Award, 2016*. 9th International Conference on Urban Climate, 12th Symposium on the Urban Environment, France.
- *Third prize in the Application-Centered Computational Engineering Science Visualization Contest, 2015*. École Polytechnique Fédérale de Lausanne, Switzerland.
- *Outstanding Student Paper Award, 2014*. American Geophysical Union General Assembly Conference, San Francisco.
- *Ph.D. Scholarship, 2011*. Università di Firenze and Braunschweig TU University (joint Ph.D. program), Italy.
- *Erasmus Scholarship, 2010*. Scholarship awarded by Banca San Giorgio Quinto e Valle Agno, Progetto Erasmus, Italy.
- *Erasmus scholarship, 2010*. Scholarship awarded by the Italian government for the development of a MS thesis at the International Center for Numerical Methods in Engineering, Spain.

## HONORS AND AWARDS RECEIVED BY STUDENTS

- *Bonomi Summer Scholar Award, 2022*. Michael Lawrence Garcia, Columbia University.
- *Teaching Assistant Excellence Award, 2022*. Atharva Sathe, Columbia University.
- *Teaching Assistant Excellence Award, 2022*. Beatrice Giacomini, Columbia University.
- *Frontera Computational Science Fellowship, 2021*. Gurpreet Singh Hora, Texas Advanced Computing Center.
- *Bonomi Summer Scholar Award, 2020*. Christine Blackshaw, Columbia University.
- *Boris A. Bakhmeteff Research Fellowship in Fluid Mechanics, 2019*. Beatrice Giacomini, Columbia University.
- *Outstanding Student Paper Award, 2019*. Beatrice Giacomini, American Geophysical Union General Assembly Conference, San Francisco.
- *Earl R. Peterson memorial Scholarship in Civil Engineering, 2018*. Manuel F. Schmid, University of British Columbia.
- *Doc. Mobility Fellowship, 2018*. Manuel F. Schmid, Swiss National Science Foundation.
- *Teaching Assistant Excellence Award, 2018*. Beatrice Giacomini, Columbia University.

## JOURNAL PUBLICATIONS <sup>\*</sup>Students <sup>†</sup>Postdocs and Research Staff

1. Akinlabi E. Maronga B., **Giometto M.G.**, Li D. (2022) Dispersive Fluxes within and over a Real Urban Canopy: A Large-eddy Simulation Study. Accepted for publication in *Bound.-layer Meteorol.*
2. Giacomini B.<sup>\*</sup> and **Giometto M.G.** (2022) A framework for uncertainty quantification in one-dimensional plant canopy flow. Accepted for publication in *Bound.-layer Meteorol.*

3. Cheng Y., **Giometto M.G.**, Kauffmann P., Lin L., Cao C., Zupnick C., Li H., Li Q., Abernathy R., Gentile P. (2022) Deep learning for subgrid-scale turbulence modeling in large-eddy simulations of the atmospheric boundary layer. In *J. Adv. Model Earth Sy.*, 14, e2021MS002847.
4. Javanroodi K., Vahid M.N., **Giometto M.G.**, Scartezzini J. (2022) Combining computational fluid dynamics and neural networks to characterize microclimate extremes: Learning the complex interactions between meso-climate and urban morphology. In *Sci. Total Environ.*, 829, 154223.
5. Hang C., Oldroyd H.J., **Giometto M.G.**, Pardyjak E.R., and Parlange M.B. (2021) A local similarity function for katabatic flows derived from field observations over steep- and shallow-angled slopes. In *Geophys. Res. Letters*, 48, e2021GL095479.
6. Momen M.<sup>†</sup>, Parlange M.B., and **Giometto M.G.** (2021) Scrambling and reorientation of classical atmospheric boundary layer turbulence in hurricane winds. In *Geophys. Res. Letters*, 48, e2020GL091695.
7. Giacomini B.<sup>\*</sup> and **Giometto M.G.** (2021) On the suitability of second-order accurate finite-volume solvers for the simulation of atmospheric boundary layer flow. In *Geophys. Mod. Dev.*, 14, 1409–1426.
8. Krayenhoff S.E., Jiang T., Christen A., Martilli A., Bailey B.N., Nazarian N., Voogt J.A., **Giometto M.G.**, Stastny A., and Crawford B.R. (2020) A multi-layer urban canopy meteorological model with trees (BEP-Tree): Street tree impacts on pedestrian-level climate. In *Urban Climate*, 32, 100590.
9. Lozano-Durán A., **Giometto M.G.**, Park G.I., and Moin P. (2020) Non-equilibrium three-dimensional boundary layers at moderate Reynolds numbers. In *J. Fluid Mech.*, 883, A20.
10. Comola F., **Giometto M.G.**, Parlange M.B., and Lehning M. (2019) Preferential deposition of snow and dust over hills: Governing processes and relevant scales. In *J. Geophys. Res.*, 124, 7951–7974.
11. Schmid M.F.<sup>\*</sup>, Lawrence G., and Parlange M.B., and **Giometto M.G.** (2019) Volume averaging for urban canopies. In *Bound.-Layer Meteorol.*, 173, 349–372.
12. Lenz S., Schonher M., Geier M., Krafczyk M., Pasquali A., Christen A., and **Giometto M.G.** (2019) Towards real-time simulation of turbulent wind flows in urban areas with the cumulant lattice Boltzmann method on a GPGPU. In *J. Wind Eng. Ind. Aerod.*, 189, 151–162.
13. Momen M.<sup>†</sup>, Bou-Zeid E., Parlange M.B., and **Giometto M.G.** (2018) Modulation of mean wind and turbulence in the atmospheric boundary layer by baroclinicity. In *J. Atmos. Sci.*, 75, 3797–3821.
14. Margairaz F., **Giometto M.G.**, Parlange M.B., and Calaf M. (2018) Comparison of dealiasing schemes in large-eddy simulation of neutrally-stratified atmospheric boundary-layer type flows. In *Geosci. Model Dev. Discuss.*, 11, 4069–4084.
15. **Giometto M.G.**, Lozano-Durán A., Park G.I., and Moin P. (2017) Three-dimensional transient channel flow at moderate Reynolds numbers: analysis and wall modeling. In *Ann. Res. Brief, Center for Turbulence Research*, 193–205.
16. **Giometto M.G.**, Katul G.G., Fang J., and Parlange M.B. (2017) Direct numerical simulation of slope flows up to Grashof number  $Gr = 2^{11}$ . In *J. Fluid Mech.*, 829, 589–620.

17. **Giometto M.G.**, Christen A., Egli P.E., Schmid M.F.<sup>\*</sup>, Tooke R., Coops N.C., and Parlange M.B. (2017) Effects of urban trees on mean wind, turbulence and momentum exchange within and above a realistic urban canopy. In *Adv. Water Resour.*, 106, 154–168.
18. **Giometto M.G.**, Grandi R., Fang J., Monkewitz, P.A., and Parlange, M.B. (2016) Katabatic flow: A closed-form solution with spatially-varying eddy diffusivities. In *Bound.-Layer Meteorol.*, 162, 307–317.
19. **Giometto M.G.**, Christen A., Meneveau C., Fang J., Krafczyk M., and Parlange M.B. (2016) Spatial characteristics of roughness sublayer mean flow and turbulence over a realistic urban surface. In *Bound.-Layer Meteorol.*, 160, 425–452.

## MANUSCRIPTS UNDER REVIEW <sup>\*</sup>Students <sup>†</sup>Postdocs

1. Li W.<sup>\*</sup>, **Giometto M.G.** Unsteady boundary layer flow in urban canopies. In *J. Fluid Mech.*
2. Li W.<sup>\*</sup>, **Giometto M.G.** Quality and reliability of second order, finite-volume-based solvers for wall-modeled large eddy simulation. In *Comput. Fluids.*
3. Schmid M.<sup>\*</sup>, **Giometto M.G.**, Parlange M.B. A new codebase for the simulation of atmospheric boundary layer flow. In *J. Adv. Model Earth Sy.*
4. Cui Y., Xiao S., **Giometto M.G.**, Li Q. Effects of urban surface roughness on potential sources of microplastics in the atmospheric boundary layer. In *Bound.-layer Meteorol.*
5. Calaf M., Vercauteren N., Katul G.G., **Giometto M.G.**, Morrison T.J., Margairaz F., Boyko V., Pardyjak E.R. Contemporary limitations in numerical weather prediction models. In *Bound.-layer Meteorol.*

## INVITED TALKS

1. Characterizing hurricane turbulence via numerical simulations. Massachusetts Institute of Technology, Parsons Laboratory Seminar Series, Virtual, 2021.
2. Computational modeling of land-atmosphere interaction for sustainable urban development. ISSNAF Young Investigator Award 2021, Virtual, 2021.
3. Atmospheric turbulence in tropical cyclones and its impact on offshore structures. China University of Petroleum, Virtual, 2021.
4. Modeling land-atmosphere interaction for a sustainable and resilient urban development. 20 years of PhD program: memories and perspectives from the alumni, International PhD School in Civil and Environmental Engineering, Florence, Italy, 2021.
5. Insight into the structure of hurricane boundary layer mean flow and turbulence. Fluid Dynamics Research Consortium, Department of Mechanical Engineering, Penn State University, State College, PA, 2021.
6. Quantifying the impact of flow unsteadiness on momentum and scalar transfer in urban environments. Meteorology And Climate - Modeling for Air Quality, Air Quality Research Center, University of California Davis, Davis, CA, 2021.
7. Tackling turbulence with artificial neural networks. Thornton Tomasetti, New York, NY, 2021.

8. Insight into the structure of hurricane boundary layer mean flow and turbulence. Cornell Fluids Seminar, Sibley School of Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY, 2021.
9. Drag and drag partition in vegetated urban canopies. Department of Meteorology and Atmospheric Science, Penn State University, State College, PA, 2021.
10. Quantifying the impact of trees on turbulent transport in the urban boundary layer: insight from large-eddy simulation and theoretical models. Department of Mechanical Engineering, The City College New York, New York, NY, 2020.
11. Large-eddy simulation in urban areas: the impact of urban trees. Department of Environmental Engineering, Freiburg University, Freiburg, Germany, 2019.
12. Characterizing atmospheric turbulence over and within urban environments: challenges and opportunities, Amazon Prime Air, Seattle, WA, 2018.
13. Boundary-layer flows over urban canopies and drainage flows: numerical analysis and analytical modeling. Institute for Atmospheric and Earth System Research, Helsinki University, Helsinki, Finland, 2017.
14. Characterization of buoyancy-driven turbulent flows over inclines. CTR Tea Seminar Series, Stanford University, Stanford, CA, 2017.
15. Turbulent transport in complex boundary-layer flows. Department of Civil Engineering and Engineering Mechanics, Columbia University, New York, NY, 2017.
16. Numerical simulations of katabatic flows. Complex Fluids Laboratory, University of British Columbia, Vancouver, Canada, 2014.
17. An immersed meshless method for simulation of fluid-structure interaction. Department of Geophysical Sciences, University of Lausanne, Lausanne, Switzerland, 2013.

## RECENT PRESENTATIONS

1. Li W.<sup>\*</sup>, **Giometto M.G.** (2021) Mean flow and turbulence dynamics in non-stationary atmospheric boundary layer over urban-like roughness. In AGU Fall Meeting, Virtual.
2. **Giometto M.G.**, Momen M.<sup>†</sup>, Parlange M.B. (2021) Insight on the structure of hurricane boundary-layer mean flow and turbulence. In Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference, Virtual.
3. Giacomini B.<sup>\*</sup>, **Giometto M.G.** (2021) On the suitability of second-order accurate finite-volume solvers for the simulation of atmospheric boundary layer flow. In Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference, Virtual.
4. Giacomini B.<sup>\*</sup>, **Giometto M.G.** (2020) On the sensitivity of flow statistics to parameter uncertainty in flow over plant canopy. In AGU Fall Meeting, Virtual.
5. Giacomini B.<sup>\*</sup>, **Giometto M.G.** (2020) Uncertainty quantification in canopy turbulence. In AGU Fall Meeting, Virtual.
6. Schmid M.F.<sup>\*</sup>, **Giometto M.G.**, Parlange M.B. (2020) Towards optimal numerics for the simulation of boundary-layer flows. In 73rd Annual Meeting of the APS Division of Fluid Dynamics, Virtual.

7. **Giometto M.G.**, Schmid M.F.\*, Christen A., Salesky S.T., Parlange M.B. (2019) Aerodynamic roughness parameters of vegetated urban canopies. In AGU Fall Meeting, San Francisco, CA.
8. Momen M.†, **Giometto M.G.**, Parlange M.B. (2019) Large-eddy simulations of hurricane boundary layers and scrambling of coherent turbulence structures. In AGU Fall Meeting, San Francisco, CA.
9. **Giometto M.G.**, Schmid M.F.\*, Parlange M.B. (2019) Drag and drag partition over vegetated urban canopies. In AGU Fall Meeting, San Francisco, CA.
10. Parlange M.B., Schmid M.F.\*, Lawrence G.A., Giometto M.G. (2019) Horizontal averaging of urban canopy flows. In AGU Fall Meeting, San Francisco, CA.
11. Giacomini B.\*, **Giometto M.G.** (2019) Quality and reliability of general-purpose finite-volume solvers for the simulation of atmospheric boundary layer flow. In AGU Fall Meeting, San Francisco, CA.
12. Schmid M.F.\*, **Giometto M.G.**, Parlange M.B. (2019) Turbulent flow simulations with the Julia programming language. In 72st Annual Meeting of the American Physical Society Division of Fluid Dynamics, Seattle, WA.
13. Giacomini B.\*, **Giometto M.G.** (2019) Quality and reliability of general-purpose finite-volume solvers for the simulation of atmospheric boundary layer flow. In 72st Annual Meeting of the American Physical Society Division of Fluid Dynamics, Seattle, WA.
14. Li W.\*, Katul G.G., Chamecki M., Parlange M.B., Giometto M.G. (2019) Quality and reliability of general purpose finite-volume solvers for wall-modeled large-eddy simulation of channel flow at a moderate Reynolds number. In 72st Annual Meeting of the American Physical Society Division of Fluid Dynamics, Seattle, WA.
15. Schmid M.F.\*, **Giometto M.G.**, Parlange M.B. (2018) Atmospheric boundary-layer simulations with the Julia programming language. In American Geophysical Union Fall Meeting, Washington, DC.
16. Li W.\*, Chamecki M., Parlange M.B., **Giometto M.G.** (2018) A new algebraic subgrid-scale model for flow within vegetation canopies. In American Geophysical Union Fall Meeting, Washington, DC.
17. **Giometto M.G.**, Schmid M.F.\*, Parlange M.B. (2018) Aerodynamic roughness parameters of vegetated urban canopies. In American Geophysical Union Fall Meeting, Washington, DC.
18. Schmid M.F.\*, **Giometto M.G.**, Lawrence G.A., Parlange M.B. (2018) Volume averaging for urban canopies. In 71st Annual Meeting of the American Physical Society Division of Fluid Dynamics, Atlanta, GA.
19. **Giometto M.G.**, Schmid M.F.\*, Christen A., Salesky S.T., Parlange M.B. (2018) Aerodynamic roughness parameters of vegetated urban canopies. In 10th International Conference on Urban Climate, New York, NY.
20. Schmid M.F.\*, **Giometto M.G.**, Parlange M.B. (2018) Relating the horizontally averaged wind profile to the geometry of idealized urban surfaces. In 13th World Congress in Computational Mechanics, New York, NY.

21. **Giometto M.G.**, Lozano-Duran A., Park G.I., Moin P. (2018) Analysis of three-dimensional transient channel flow at moderate Reynolds numbers. In 13th World Congress in Computational Mechanics, New York, NY.
22. Momen M.<sup>†</sup>, Bou-Zeid E., **Giometto M.G.**, Parlange M.B. (2018) Exploring the Impact of Baroclinicity and Stability on the Atmospheric Boundary Layer. In 23rd Symposium on Boundary Layers and Turbulence, American Meteorological Society, Oklahoma City, OK.
23. Li W.<sup>\*</sup>, Katul G.G., Chamecki M., Parlange M.B., **Giometto M.G.** (2017) Large-eddy simulation of slope flow over and within a vegetation canopy. In American Geophysical Union Fall Meeting, New Orleans, LA.

## FUNDED PROJECTS

1. *Years:* 2022-2023  
*Title:* Distributed Sensor Network of Meteorological Towers  
*Sponsor:* Columbia University  
*Funds:* \$23,133  
*Investigators:* Giometto M.G. (PI), V.F. McNeill
2. *Years:* 2022-2023  
*Title:* Virtual and Augmented Reality for Urban Climate Modeling  
*Sponsor:* Columbia University, Emerging Technologies Consortium  
*Funds:* \$20,000  
*Investigators:* Giometto M.G. (PI)
3. *Years:* 2022-2023  
*Title:* Defense University Research Instrumentation Program: Aerial Light Detection and Ranging System for Land-Atmosphere Interaction Research  
*Sponsor:* Army Research Office  
*Funds:* \$201,859  
*Investigators:* Giometto M.G. (PI)
4. *Years:* 2022-2025  
*Title:* Characterization of Hurricane Boundary Layer Turbulence for Wind Hazard Mitigation  
*Sponsor:* U.S. Department of Commerce, National Institute for Standards and Technology  
*Funds:* \$389,146  
*Investigators:* Giometto M.G. (PI)
5. *Years:* 2022-2025  
*Title:* Physics- Data-Driven Surrogate Models for Vegetation-Atmosphere Interaction: Improved Parameterization of Turbulent Exchanges Between Plant Canopies and the Atmosphere  
*Sponsor:* LEAP Science and Technology Center at Columbia University  
*Funds:* \$276,039  
*Investigators:* Giometto M.G. (PI), Fish J., Ensheng W., Vondrick C., Lawrence D.
6. *Years:* 2021-2022  
*Title:* AWS Cloud Credits for Research for Scholars and Amazon Visiting Academics  
*Sponsor:* Amazon Web Services  
*Funds:* \$100,000 in Amazon Web Services Cloud Credits  
*Investigators:* Giometto M.G. (PI)

7. *Years:* 2021-2024  
*Title:* Snow Transport in Katabatic Winds and Implications for the Antarctic Surface Mass Balance: Observations, Theory, and Numerical Modeling  
*Sponsor:* National Science Foundation  
*Funds:* \$628,817  
*Investigators:* Giometto M.G. (PI), Das I.
8. *Years:* 2021-2023  
*Title:* Towards a Mechanistic Epidemiological Model via Computational Fluid Dynamics and Individual-Based Modeling  
*Sponsor:* Columbia University  
*Funds:* \$170,000  
*Investigators:* Giometto M.G. (PI), McNeill F.V., Shaman J., Sobel A.H.
9. *Years:* 2021-2023  
*Title:* Heat And The City: Supporting Urban Planning in Marginalized Neighborhoods Via Coordinated Experiments and Simulations  
*Sponsor:* Columbia University  
*Funds:* \$25,000  
*Investigators:* Giometto M.G. (PI)
10. *Years:* 2021-2023  
*Title:* Multiscale Modeling of Hurricane Boundary Layer Flows  
*Sponsor:* Computing Research Association  
*Funds:* \$259,605  
*Investigators:* Giometto M.G. (PI)
11. *Years:* 2019-2021  
*Title:* Tracking Air Pollutants and Reconstructing 3-D Scalar Fields from 2-D Satellite Images via Machine Learning  
*Sponsor:* Data Science Institute at Columbia University  
*Funds:* \$190,000  
*Investigators:* Giometto M.G. (PI), Gentine P., Vondrick C., Momen M.
12. *Years:* 2018  
*Title:* GPU-accelerated Computing for CUIT Habanero Cluster  
*Sponsor:* Columbia University  
*Funds:* \$39,000  
*Investigators:* Gentine P., Agrawal D., Sun W.C., Giometto M.G. (Co-PI), Waisman H.

## **FUNDED HIGH PERFORMANCE COMPUTING PROJECTS**

1. *Years:* 2022-2023  
*Title:* Fundamental and applied studies of turbulent flow phenomena in the environment  
*Sponsor:* XSEDE High-Performance-Computing Allocation  
*Funds:* 240,000 node hours on the Stampede2 system, 5,364,000 core hours on the Purdue Anvil system, and 5,000 GPU Hours on the Expanses system. The estimated value of these resources is \$89,918.  
*Investigators:* Giometto M.G. (PI), Schmid M.F., Sathe A.S.
2. *Years:* 2021-2022  
*Title:* Fundamental and applied studies of turbulent flow phenomena in the environment



*Sponsor:* XSEDE High-Performance-Computing Allocation

*Funds:* 150,000 node hours on the Stampede2 system and 3,600,000 core hours on the Bridges-2 system. The estimated value of these resources is \$56,055.

*Investigators:* Giometto M.G. (PI), Li W.

3. *Years:* 2020-2021

*Title:* Characterizing the Impact of Air Currents on Droplets and Aerosols Dispersion

*Sponsor:* COVID-19 High Performance Computing Consortium

*Funds:* 600,000 node hours on the Stampede2 and Frontera systems. The estimated value of these resources is \$155,759.

*Investigators:* Giometto M.G. (PI), Hora G.S.

4. *Years:* 2020-2021

*Title:* Turbulence Structure of Extreme Winds in Hurricanes and Its Impacts on Urban and Coastal Environments

*Sponsor:* XSEDE High-Performance-Computing Allocation

*Funds:* 81,387 node hours on the Stampede2 system. The estimated value of these resources is \$21,128.

*Investigators:* Giometto M.G.

5. *Years:* 2019-2020

*Title:* Turbulence Structure of Extreme Winds in Hurricanes and its Impacts on Urban Environments

*Title:* XSEDE High-Performance-Computing Allocation

*Funds:* 106,454 node hours on the Stampede2 system, equivalent to \$27,635.

*Investigators:* Giometto M.G. (PI), Momen M.

## EDITORSHIPS AND REVIEWS

- *Associate Editor:* Journal of the Atmospheric Sciences (JAS), 2021 – present
- *Reviewer of manuscripts for:* Boundary-Layer Meteorology, Journal of the Atmospheric Sciences, Journal of Fluid Mechanics, Physical Review Fluids, Physics of Fluids, Journal of Geophysical Research, Quarterly Journal of the Royal Meteorological Society, Environmental Fluid Mechanics, Journal of Wind Engineering & Industrial Aerodynamics, Geophysical Model Development, Theoretical and Applied Climatology, Journal of Urban Climate, Building and Environment, Agricultural and Forest Meteorology, Atmospheric Science Letters, Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering, Urban Forestry and Urban Greening, Journal of Renewable and Sustainable Energy, Atmospheric Chemistry and Physics.
- *Reviewer of proposals for:* National Science Foundation, Army Research Office.

## MEMBERSHIP IN PROFESSIONAL SOCIETIES

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)
- American Society of Civil Engineers (ASCE)
- Engineering Mechanics Institute (EMI)
- American Society of Mechanical Engineers (ASME)

- American Physical Society (APS)

## **SERVICE TO THE SCIENTIFIC COMMUNITY**

- *Committee member*: Engineering Mechanics Institute (EMI), Fluid Dynamics Technical Committee, 2021 – present.
- *Co-convener and session chair*: Analysis and Prediction of Wind Effects on the Built Environment, Engineering Mechanics Institute Conference, Baltimore, MD, 2022.
- *Primary convener and session chair*: Boundary Layer Processes and Turbulence, AGU Fall Meeting, New Orleans, LA, 2021.
- *Co-convener and session chair*: Analysis and Prediction of Wind Effects on the Built Environment, Engineering Mechanics Institute Conference, Virtual, 2021.
- *Session chair*: Boundary Layer Processes and Turbulence, AGU Fall Meeting, Virtual, 2020.
- *Program committee member*: NY Scientific Data Summit, 2019.
- *Member of the organizing committee*: World Congress in Computational Mechanics, 2018.
- *Primary convener and session chair*: Advances in numerical modeling and physical understanding of turbulent boundary-layer flows, World Congress in Computational Mechanics, 2018.
- *Session chair*: Numerical modeling of urban processes, 10th International Conference on Urban Climate, 2018.

## **SERVICE TO THE UNIVERSITY**

- *Affiliated member*: Earth Institute, Columbia University, 2021 – present
- *Member*: Data Science Institute, Columbia University, 2018 – present
- *Member*: Communications Committee, Department of Civil Engineering and Engineering Mechanics, Columbia University, 2020 – present.
- *Member*: MS Specialization in Computational and Data Driven Engineering Mechanics committee, Department of Civil Engineering and Engineering Mechanics, Columbia University, 2020 – present.
- *PhD defense committee member*:
  1. Fabien Margairaz, Mechanical Engineering (University of Utah, UT), 2018.
  2. Braden Czapla, Mechanical Engineering, 2018.
  3. Kun Wang, Civil Engineering and Engineering Mechanics, 2019.
  4. Cheng Yu, Earth and Environmental Engineering, 2020.
  5. Ioannis Petromichelakis, Civil Engineering and Engineering Mechanics, 2020.
  6. Arvind Srinivasan, Mechanical Engineering, 2020.
  7. Chunlin Wu, Civil Engineering and Engineering Mechanics, 2021.
  8. Nikolaus Vlassis, Civil Engineering and Engineering Mechanics, 2021.
- *Organizer*: Civil Engineering and Engineering Mechanics Department seminar series, 2021 – present.

- *Coursework / Career advisor*: 4× BS and 4× MS students per year in Civil Engineering and Engineering Mechanics, Columbia University, 2021 – present.
- *Coursework / Career advisor*: Prospective Columbia Egleston Scholars (top 1% of the undergraduate Columbia Engineering applicants), 2022.
- *Outreach*: Faculty mentor for the Amazon Summer Undergraduate Research Experience (SURE) Program, 2021 – present.

## **COURSES TAUGHT**

- Undergraduate: Fluid Mechanics, 2018 – present
- Graduate: Turbulence Theory and Modeling 2018 – present

## **ADVISING EXPERIENCE**

### *Postdocs and Research Staff:*

- Dr. Kianoosh Yousefi, 2021 – present.
- Dr. Mostafa Momen, 2018 – 2019, now Assistant Professor at the University of Houston.

### *PhD Students:*

- Atharva Sathe, 2021 – present.
- Gurpreet Singh Hora, 2020 – present.
- Beatrice Giacomini, 2018 – present.
- Weiyi Li, 2018 – present.
- Manuel Schmit (co-advised with Prof. M.B. Parlange), 2018 – present.
- Pawan Chandiramani, 2022 – present.

### *Master Students:*

- Hongshuo Yang, 2021 – present.
- Zejian You, 2021 – present.
- Arunit Maity, 2021.
- Yicheng Li, 2019 – 2021.
- Tieliang Huang, 2019 – 2020.

### *Undergraduate Students:*

- Michael L. Garcia, 2021 – present.
- Andrei Coman, 2021 – present.
- Meera Mavroidis, 2021.
- Onyinyechi Obineche, 2021.
- Daniel Kolano, 2020 – 2021.
- Christine Ye Shu Blackshaw, 2020 – 2021.
- Shinya Michael Kondo, 2018 – 2020.
- Cheng Bi, 2018 – 2019.

### *Visiting Scholars:*

- Simone Boi, Postdoc, Helsinki University, Finland, 2020.

- Jean Lac, BS student, ENS Paris Saclay, France, 2020.
- Sophie Abramian, BS student, ENS Paris Saclay, France, 2018 – 2019.
- Yuxi Guan, PhD student, Wuhan University, China, 2018 – 2019.