Heng Xiao, Associate Professor

Kevin T. Crofton Department of Aerospace and Ocean Engineering, Virginia Tech
460 Old Turner Street, Blacksburg, VA 24061, USA

EDUCATION

Ph.D. Civil Engineering, Princeton University, USA (2009)

M.Sc. Scientific Computing, Royal Institute of Technology (KTH), Sweden (2005)

B.Sc. Civil Engineering, Zhejiang University, China (2003)

APPOINTMENTS AND VISITING POSITIONS

Associate Professor in Aerospace & Ocean Engineering, Virginia Tech, USA (06.2020–present)

Assistant Professor in Aerospace & Ocean Engineering, Virginia Tech, USA (01.2013–06.2020)

Postdoc. Scholar, Institute of Fluid Dynamics, ETH Zürich, Switzerland (10.2009–12.2012)

Visiting Professor, Arts et Métiers ParisTech (ENSAM), Lille, France (07.2018)

Visiting Professor, Arts et Métiers ParisTech (ENSAM), Paris, France (12.2016)

Visiting Scholar, Center of Turbulence Research, Stanford University, USA (06-11.2016)

Visiting Researcher, The University of Edinburgh, Edinburgh, UK (10.2011–02.2012)

STUDENT ADVISING

Supervised five Ph.D. dissertations to completion (degree date and placement indicated)

Carlos Michélen-Ströfer (2021): Staff Scientist, Sandia National Laboratory.

Xin-Lei Zhang[1] (2019): Postdoctoral Scholar, Chinese Academy of Sciences, Beijing.

Jin-Long Wu (2018): Assistant Professor, University of Wisconsin-Madison

Rui Sun (2017): Postdoctoral Scholar, University of California San Diego

Jian-Xun Wang (2017): Assistant Professor, University of Notre Dame

Supervised six master thesis and 15 bachelor thesis at Virginia Tech and ETH Zürich

Currently supervising three Ph.D. students (starting date indicated):

M. Irfan Zafar (01.2019), *Xu-Hui Zhou* (01.2020), *John A. Schaefer*[2] (01.2019)

TEACHING EXPERIENCES

Taught and developed core courses in Ocean Engineering major (Marine Engineering, Ocean Wave Mechanics, Marine Propulsion)

Developed and taught graduate courses at Virginia Tech (Scientific Machine Learning and Uncertainty Quantification); taught at ETH Zurich (Advanced Computational Fluid Dynamics Methods)

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[1] co-advised with O. Coutier-Delgosha
[2] co-advised with Chris Roy

Services to Scientific Community (Selected)

Associate Editor-in-Chief, Theoretical and Applied Mechanics Letters.   (2020-2025)

Minisymposium Organizer, The 13th World Congress in Computational Mechanics   (2018)

Session Chair, SIAM Conference on Computational Science and Engineering   (2017)

Minisymposium Organizer, SIAM Conference on Computational Science & Engineering (2017)

Reviewer and Panelist for US National Science Foundation;   (2017)

Minisymposium Organizer, SIAM Conference on Uncertainty Quantification   (2016)

Reviewer for various agencies in Europe, including Austria National Science Foundation (FWF), Dutch Research Council (NWO), Swiss National Supercomputing Center (CSCS).   (2017-2020)

Awards and Fellowships

"Brain Pool" Visiting Fellowship, Korean National Research Foundation.   (01-07/2022)

Summer Research Fellowship, Center of Turbulence Research, Stanford University.   (2016)

Participated in the Department of Energy Wave Energy Prize. The team advanced to top 20 out of a total of 92 teams from around the world. Featured in NPR news.   (2016)

Finalist, Undergraduate Research Advisor Award, College of Engineering, Virginia Tech (2014)

Francis Upton Fellowship, Princeton University   (2005–2009)

Invited Presentations (Selected)

- Turbulence Modeling in the Age of Data: From Data Assimilation to Machine Learning. Invited Research Seminars Whittle Laboratory, Cambridge University   (11.2019)
- Physics-Informed Machine Learning for Predictive Turbulence Modeling. *The Second Physics Informed Machine Learning*, Los Alamos National Laboratory. Santa Fe, NM. (Invited) (01.2019)
- Data-driven turbulence modeling. *Annual Meeting of the State Key Laboratory for Turbulence and Complex Systems*, Peking University, China. (Invited speaker)   (12.2017)
- Physics-Informed Machine Learning for Predictive Turbulence Modeling: Status, Perspectives, and Case Studies. *NASA Langley Workshop on Machine Learning Technologies and Their Applications to Scientific and Engineering Domains*. Hampton, VA. (Invited speaker)   (08.2016)