Bibliography

Nicola Demo

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References

[1] N. Demo, M. Strazzullo, and G. Rozza, "Generative adversarial reduced order modelling," *Scientific Reports*, vol. 14, 2024. DOI: 10.1038/s41598-024-54067-z. arXiv: 2305.15881 [cs.LG]. [Online]. Available: https://doi.org/10.1038/s41598-024-54067-z.

[2] A. Ivagnes, N. Demo, and G. Rozza, "A shape optimization pipeline for marine propellers by means of reduced order modeling techniques," *International Journal for Numerical Methods in Engineering*, 2024. DOI: 10.1002/nme.7426. arXiv: 2305.07515 [math.OC].

[3] M. Teruzzi, N. Demo, and G. Rozza, "A graph-based framework for complex system simulating and diagnosis with automatic reconfiguration," *Mathematics in Engineering*, vol. 6, no. 1, pp. 28–44, 2024, ISSN: 2640-3501. DOI: 10.3934/mine.2024002. arXiv: 2302.06473 [eess.SY]. [Online]. Available: https://www.aimspress.com/article/doi/10.3934/mine.2024002.

[4] F. Andreuzzi, N. Demo, and G. Rozza, "A dynamic mode decomposition extension for the forecasting of parametric dynamical systems," *SIAM Journal on Applied Dynamical Systems*, vol. 22, no. 3, pp. 2432–2458, 2023. DOI: 10.1137/22M1481658. arXiv: 2110.09155 [math.NA].

[5] D. Coscia, A. Ivagnes, N. Demo, and G. Rozza, "Physics-informed neural networks for advanced modeling," *Journal of Open Source Software*, 2023. DOI: 10.21105/joss.05352. [Online]. Available: https://doi.org/10.21105/joss.05352.

[6] D. Coscia, L. Meneghetti, N. Demo, G. Stabile, and G. Rozza, "A continuous convolutional trainable filter for modelling unstructured data," *Computational Mechanics*, 2023. DOI: 10.1007/s00466-023-02291-1. arXiv: 2210.13416 [cs.LG].

[7] N. Demo, M. Strazzullo, and G. Rozza, "An extended physics informed neural network for preliminary analysis of parametric optimal control problems," *Computers & Mathematics with Applications*, vol. 143, pp. 383–396, 2023, ISSN: 0898-1221. DOI: 10.1016/j.camwa.2023.05.004. arXiv: 2110.13530 [cs.LG]. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S0898122123002018.

[8] N. Demo, M. Tezzele, and G. Rozza, "A deeponet multi-fidelity approach for residual learning in reduced order modeling," *Advanced Modeling and Simulation in Engineering Sciences*, vol. 10, no. 1, p. 12, Jul. 2023. DOI: 10.1186/s40323-023-00249-9. arXiv: 2302.12682 [math.NA].

[9] A. Ivagnes, N. Demo, and G. Rozza, "Towards a machine learning pipeline in reduced order modelling for inverse problems: Neural networks for boundary parametrization, dimensionality reduction and solution manifold approximation," *Journal of Scientific Computing*, vol. 95, no. 23, 2023. DOI: 10.1007/s10915-023-02142-4. arXiv: 2210.14764 [math.NA].

[10] L. Meneghetti, N. Demo, and G. Rozza, "A dimensionality reduction approach for convolutional neural networks," *Applied Intelligence*, vol. 53, no. 19, pp. 22 818–22 833, Oct. 2023, ISSN: 1573-7497. DOI: 10.1007/s10489-023-04730-1. arXiv: 2110.09163 [cs.LG]. [Online]. Available: https://doi.org/10.1007/s10489-023-04730-1.

[11] N. Demo, M. Tezzele, G. Stabile, and G. Rozza, "Chapter 19: Scientific software development and packages for reduced order models in computational fluid dynamics," in *Advanced Reduced Order Methods and Applications in Computational Fluid Dynamics*. 2022, pp. 379–387. DOI: 10.1137/1.9781611977257.ch19. [Online]. Available: https://epubs.siam.org/doi/abs/10.1137/1.9781611977257.ch19.

[12] L. Meneghetti, N. Demo, and G. Rozza, "A proper orthogonal decomposition approach for parameters reduction of single shot detector networks," in *2022 IEEE International Conference on Image Processing (ICIP)*, 2022, pp. 2206–2210. DOI: 10.1109/ICIP46576.2022.9897513. arXiv: 2210.13416 [cs.CV].

[13] L. Meneghetti, N. Shah, M. Girfoglio, *et al.*, "Chapter 20: A deep learning approach to improving reduced order models," in *Advanced Reduced Order Methods and Applications in Computational Fluid Dynamics*. 2022, pp. 389–413. DOI: 10.1137/1.9781611977257.ch20. eprint: https://epubs.siam.org/doi/pdf/10.1137/1.9781611977257.ch20. [Online]. Available: https://epubs.siam.org/doi/abs/10.1137/1.9781611977257.ch20.

[14] A. Mola, N. Demo, M. Tezzele, and G. Rozza, "Chapter 17: Geometrical parametrization and morphing techniques with applications," in *Advanced Reduced Order Methods and Applications in Computational Fluid Dynamics*. 2022, pp. 345–364. DOI: 10.1137/1.9781611977257.ch17. [Online]. Available: https://epubs.siam.org/doi/abs/10.1137/1.9781611977257.ch17.

[15] G. Ortali, N. Demo, and G. Rozza, "Gaussian process approach within a data-driven POD framework for fluid dynamics engineering problems," *Mathematics in Engineering*, vol. 4, no. 3, pp. 1–16, 2022. DOI: 10.3934/mine.2022021. arXiv: 2012.01989 [math.NA].

[16] D. Papapicco, N. Demo, M. Girfoglio, G. Stabile, and G. Rozza, "The neural network shifted-proper orthogonal decomposition: A machine learning approach for non-linear reduction of hyperbolic equations," *Computer Methods in Applied Mechanics and Engineering*, vol. 392, p. 114 687, 2022, ISSN: 0045-7825. DOI: https://doi.org/10.1016/j.cma.2022.114687. arXiv: 2108.06558 [math.NA]. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S004578252200069X.

[17] M. Tezzele, N. Demo, A. Mola, and G. Rozza, "An integrated data-driven computational pipeline with model order reduction for industrial and applied mathematics," in *Novel Mathematics Inspired by Industrial Challenges*, M. Günther and W. S. Wil, Eds. Springer International Publishing, 2022, pp. 179–200, ISBN: 978-3-030-96173-2. DOI: 10.1007/978-3-030-96173-2_7. arXiv: 1810.12364 [math.NA]. [Online]. Available: https://doi.org/10.1007/978-3-030-96173-2_7.

[18] M. Tezzele, N. Demo, G. Stabile, and G. Rozza, "Chapter 9: Nonintrusive data-driven reduced order models in computational fluid dynamics," in *Advanced Reduced Order Methods and Applications in Computational Fluid Dynamics*. 2022, pp. 203–222. DOI: 10.1137/1.9781611977257.ch9. eprint: https://epubs.siam.org/doi/pdf/10.1137/1.9781611977257.ch9. [Online]. Available: https://epubs.siam.org/doi/abs/10.1137/1.9781611977257.ch9.

[19] N. Demo, M. Tezzele, A. Mola, and G. Rozza, "Hull shape design optimization with parameter space and model reductions, and self-learning mesh morphing," *Journal of Marine Science and Engineering*, vol. 9, no. 2, 2021, ISSN: 2077-1312. DOI: 10.3390/jmse9020185. arXiv: 2101.03781 [math.NA]. [Online]. Available: https://www.mdpi.com/2077-1312/9/2/185.

[20] N. Demo, M. Tezzele, and G. Rozza, "A supervised learning approach involving active subspaces for an efficient genetic algorithm in high-dimensional optimization problems," *SIAM Journal on Scientific Computing*, vol. 43, no. 3, B831–B853, 2021. DOI: 10.1137/20M1345219. arXiv: 2006.07282 [math.NA].

[21] N. Demo, G. Ortali, G. Gustin, G. Rozza, and G. Lavini, "An efficient computational framework for naval shape design and optimization problems by means of data-driven reduced order modeling techniques," *Bollettino dell'Unione Matematica Italiana*, Nov. 2020, ISSN: 2198-2759. DOI: 10.1007/s40574-020-00263-4. arXiv: 2004.11201 [math.NA]. [Online]. Available: https://doi.org/10.1007/s40574-020-00263-4.

[22] F. Garotta, N. Demo, M. Tezzele, M. Carraturo, A. Reali, and G. Rozza, "Reduced order isogeometric analysis approach for PDEs in parametrized domains," in *Quantification of Uncertainty: Improving Efficiency and Technology: QUIET selected contributions*, M. D'Elia, M. Gunzburger, and G. Rozza, Eds. Springer International Publishing, 2020, pp. 153–170, ISBN: 978-3-030-48721-8. DOI: 10.1007/978-3-030-48721-8_7. arXiv: 1811.08631 [math.NA]. [Online]. Available: https://doi.org/10.1007/978-3-030-48721-8_7.

[23] M. Tezzele, N. Demo, A. Mola, and G. Rozza, "PyGeM: Python geometrical morphing," *Software Impacts*, p. 100 047, 2020, ISSN: 2665-9638. DOI: https://doi.org/10.1016/j.simpa.2020.100047. [Online]. Available: http://www.sciencedirect.com/science/article/pii/S2665963820300385.

[24] M. Tezzele, N. Demo, G. Stabile, A. Mola, and G. Rozza, "Enhancing cfd predictions in shape design problems by model and parameter space reduction," *Advanced Modeling and Simulation in Engineering Sciences*, vol. 7, no. 1, p. 40, Oct. 2020, ISSN: 2213-7467. DOI: 10.1186/s40323-020-00177-y. arXiv: 2001.05237 [math.NA]. [Online]. Available: https://doi.org/10.1186/s40323-020-00177-y.

[25] N. Demo, M. Tezzele, A. Mola, and G. Rozza, "A complete data-driven framework for the efficient solution of parametric shape design and optimisation in naval engineering problems," in *VIII International Conference on Computational Methods in Marine Engineering*, 2019. arXiv: 1905.05982 [math.NA].

[26] N. Demo, M. Tezzele, and G. Rozza, "A non-intrusive approach for the reconstruction of POD modal coefficients through active subspaces," *Comptes Rendus Mécanique*, vol. 347, no. 11, pp. 873–881, Nov. 2019. DOI: 10.1016/j.crme.2019.11.012. arXiv: 1907.12777 [math.NA]. [Online]. Available: https://doi.org/10.1016/j.crme.2019.11.012.

[27] M. Tezzele, N. Demo, and G. Rozza, "Shape optimization through proper orthogonal decomposition with interpolation and dynamic mode decomposition enhanced by active subspaces," in *VIII International Conference on Computational Methods in Marine Engineering*, 2019. arXiv: 1905.05483 [math.NA].

[28] N. Demo, M. Tezzele, G. Gustin, G. Lavini, and G. Rozza, "Shape optimization by means of proper orthogonal decomposition and dynamic mode decomposition," in *Technology and Science for the Ships of the Future: Proceedings of NAV 2018: 19th International Conference on Ship & Maritime Research*, IOS Press, 2018, pp. 212–219. DOI: 10.3233/978-1-61499-870-9-212. arXiv: 1803.07368 [math.NA].

[29] N. Demo, M. Tezzele, A. Mola, and G. Rozza, "An efficient shape parametrisation by free-form deformation enhanced by active subspace for hull hydrodynamic ship design problems in open source environment," in *The*

28th International Ocean and Polar Engineering Conference, 2018. arXiv: 1801.06369 [math.NA].

[30] N. Demo, M. Tezzele, and G. Rozza, "EZyRB: Easy reduced basis method," *Journal of Open Source Software*, vol. 3, no. 24, p. 661, Apr. 2018. DOI: 10.21105/joss.00661. [Online]. Available: https://doi.org/10.21105/joss.00661.

[31] N. Demo, M. Tezzele, and G. Rozza, "PyDMD: Python dynamic mode decomposition," *Journal of Open Source Software*, vol. 3, no. 22, p. 530, Feb. 2018. DOI: 10.21105/joss.00530. [Online]. Available: https://doi.org/10.21105/joss.00530.

[32] G. Rozza, M. H. Malik, N. Demo, *et al.*, "Advances in Reduced Order Methods for Parametric Industrial Problems in Computational Fluid Dynamics," in *Proceedings of the ECCOMAS Congress 2018*, ECCOMAS, Glasgow, UK: ECCOMAS, 2018. arXiv: 1811.08319 [math.NA].

[33] M. Tezzele, N. Demo, M. Gadalla, A. Mola, and G. Rozza, "Model order reduction by means of active subspaces and dynamic mode decomposition for parametric hull shape design hydrodynamics," in *Technology and Science for the Ships of the Future: Proceedings of NAV 2018: 19th International Conference on Ship & Maritime Research*, IOS Press, 2018, pp. 569–576. DOI: 10.3233/978-1-61499-870-9-569. arXiv: 1803.07377 [math.NA].

[34] E. Calore, N. Demo, S. F. Schifano, and R. Tripiccione, "Experience on vectorizing lattice boltzmann kernels for multi- and many-core architectures," in *Parallel Processing and Applied Mathematics*. Springer International Publishing, 2016, pp. 53–62, ISBN: 978-3-319-32149-3. DOI: 10.1007/978-3-319-32149-3_6. [Online]. Available: https://doi.org/10.1007/978-3-319-32149-3_6.