

**Book Chapter:** "CFD for powerboats" Contribution to Dag Pike's 2019 book 'Powerboat Design and Performance' ISBN : 9781472965394 [pdf link](#)

## Journal and peer-reviewed conference publications

### *Artificial Intelligence & High-Performance Computing for Engineering Optimization*

1. [Kandasamy, M.](#), Wu, P-C., Zalek, S., Karr, D., Bartlett, S., Nguyen, L., & Stern, F., "CFD based hydrodynamic optimization and structural analysis of the hybrid ship hull," Society of Naval Architects and Marine Engineers - Transactions, Vol. 122, pp. 92-123, 2014. [pdf link](#)
2. [Kandasamy, M.](#), Peri, D., Tahara, Y., Wilson, W., Miozzi, M., Svetlozar, G., Evgeni, M., Campana, E., & Stern, F., "Simulations based design optimization of waterjet propelled Delft catamaran," Journal of International Ship Building Progress, Invited paper, Vol. 60, No.14, pp. 277-308, 2013 [pdf link](#)
3. [Kandasamy, M.](#), Ooi, S.K., Carrica, P., Stern, F., Campana, E., Peri, D., Osborne, P., Cote, J., Macdonald, N., and Waal, N.D, "Multi-fidelity optimization of a high-speed foil-assisted semi-planing catamaran for low wake," Journal of Marine Science and Technology, Vol. 16, No. 2, pp. 143-156, 2011 [pdf link](#)
4. [Kandasamy, M.](#), He, W., Tahara, Y., Peri, D., Campana, E., Wilson, W., and Stern, F., "Optimization of waterjet propelled high speed ships - JHSS and Delft catamaran," 11th Int. Conf. on Fast Sea Transportation, Honolulu, Hawaii, 2011 [pdf link](#)
5. [Kandasamy, M.](#), Ooi, S.K., Carrica, P., Stern, F., Campana, E.F., Peri, D., Osborne, P., Cote, J., Macdonald, N., and Waal, N.D, "URANS optimization of a high speed foil-assisted semi-planing catamaran", 10th Int. Conf. on Fast Sea Transportation, Athens, 2009.
6. Chen, X., Diez, M., [Kandasamy, M.](#), Zhang, Z., Campana, E. F., and Stern, F., "High-fidelity global optimization of shape design by dimensionality reduction, metamodels and deterministic particle swarm," Engineering Optimization, Vol. 47, No. 4, pp. 473-494, 2015 [pdf link](#)
7. Chen, X., Diez, M., [Kandasamy, M.](#), Campana, E.F., and Stern, F., "Design optimization of the waterjet-propelled delft catamaran in calm water using URANS, design of experiments, metamodels and swarm intelligence," 12h Int. Conf. on Fast Sea Transportation, Amsterdam, Netherlands, 2013
8. Tahara, Y., Kobayashi, H., [Kandasamy, M.](#), He, W., Peri, D., Diez, M., Campana, E., and Stern, F., "CFD-based multi-objective stochastic optimization of a waterjet propelled high speed ship," 29th Symposium Naval Hydrodynamics, Gothenburg, Sweden, 2012
9. Tahara, Y., Hino, T., [Kandasamy, M.](#), He, W., and Stern, F., "Multi-objective deterministic optimization of waterjet propelled high speed ships." 11th Int. Conf. on Fast Sea Transportation, Hawaii, 2011
10. Wilson, W., Gorski, J., [Kandasamy, M.](#), Takai, T., He, W., Stern, F., and Tahara, Y., "Hydrodynamic shape optimization for Delft catamaran," Proceedings of the 2011 DoD High Performance Computing Modernization Program, 2011
11. Wilson, W., Gorski, J., [Kandasamy, M.](#), Takai, T., He, W., Stern, F., and Tahara, Y., "Hydrodynamic shape optimization for naval vehicles," Proceedings of the 2010 DoD High Performance Computing Modernization Program, pp. 161-168, 2010
12. Wilson, W., Gorski, J., [Kandasamy, M.](#), Takai, T., Stern, F., and Tahara, Y., "Hydrodynamic shape optimization for naval vehicles," Proceedings of the 2009 DoD High Performance Computing Modernization Program, pp. 67-72, 2009

13. Peri, D., Campana, E.F., Kandasamy, M., Ooi, S.K., Carrica, P., and Stern, F., “Potential flow optimization of a high speed foil-assisted semi-planing catamaran for low wake,” 10th Int. Conf. on Fast Sea Transportation, Athens, Greece, 2009
14. Campana, E., Peri, D., Tahara, Y., Kandasamy, M., and Stern, F., “Optimal ship design algorithms and their application to industrial problems,” Society of Naval Architects and Marine Engineers - Transactions, Vol. 117, 2009 [pdf link](#)
15. Tahara, Y., Campana, E.F., Peri, D., Pinto, A., Kandasamy, M., and Stern, F., “Global optimization and variable fidelity strategies in the single and multi-objective optimal design of fast multihull ships,” 9th Int. Conf. on Numerical Ship Hydrodynamics, Ann Arbor, 2007.

*Computational Model Development, Quality Control, Verification and Validation*

16. Kandasamy, M., Ooi, S.K., Carrica, P., Stern, F., Campana, E., Peri, D., Osborne, P., Cote, J., Macdonald, N., and Waal, N.D., “CFD validation studies for a foil-assisted semi-planing catamaran,” J. Marine Science and Technology, Vol. 16, No. 2, pp. 157–167, 2011. [pdf link](#)
17. Kandasamy, M., Ooi, S.K., Carrica, P., and Stern, F., “Integral force/moment waterjet model for CFD simulations,” ASME J. Fluids Engineering, Vol. 132, 2010. [pdf link](#)
18. Kandasamy, M., Takai, T., Stern, F., “Validation of detailed water-jet simulation using URANS for large high-speed sea-lifts,” 10th Int. Conf. on Fast Sea Transportation, Athens, Greece, 2009.
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21. Stern, F., Carrica, P., Kandasamy, M., Gorski, J., O’Dea, J., Hughes, M., Miller, R., Kring, D., Milewski, W., Hoffman, R., and Cary, C., “Computational Hydrodynamic Tools for High-Speed Sealift,” Transactions SNAME, Vol. 114, pp. 55–81, 2006. [pdf link](#)
22. Gorski, J., Miller, R., Carrica, P., Kandasamy, M., Xing, T., Stern, F., “Hydrodynamics prediction of high speed sea lift ships,” Proceedings of the 2006 DoD High Performance Computing Modernization Program, pp. 135-140, 2006.
23. Peri, D., Campana, E.F., Tahara, Y., Takai, T., Kandasamy, M., Stern, F., "New developments in simulation-based design with application to high speed waterjet ship design," 28th ONR Symposium on Naval Hydrodynamics, Pasadena, 2010.
24. Carrica, P., Wilson, B., Noack, R., Xing, T., Kandasamy, M., Shao, J., Sakamoto, N., and Stern, F., “A Dynamic Overset, Single Phase Level Set Approach for Viscous Ship Flows and Large Amplitude Motions and Maneuvering,” 26th ONR Symposium on Naval Hydrodynamics, Rome, Italy, 2006.
25. Carrica, P., Wilson, B., Noack, R., Xing, T., Kandasamy, M., and Stern, F., “A single-phase level set, DES, dynamic overset approach for viscous ship flows with application to self-propulsion and large amplitude motions and maneuvering,” 26th ONR Symposium on Naval Hydrodynamics, Rome, Italy, 2006.
26. Stern, F., Wilson, R., Longo, J., Carrica, P., Xing, T., Tahara, Y., Simonsen, C., Kim, J., Shao, J., Irvine, M., Kandasamy, M., Ghosh, S., and Weymouth, G., “Paradigm for development of simulation based design for naval hydrodynamics,” 8th Int. Conf. on Numerical Ship Hydrodynamics, Busan, Korea, 2003

## *Design Evaluation and Root Cause Analysis*

27. Kandasamy, M., Georgiev, S., Milanov, E., and Stern, F., “Numerical and experimental evaluation of waterjet propelled catamarans,” 11th Int. Conf. on Fast Sea Transportation, Honolulu, 2011.
28. Kandasamy, M., Xing, T., and Stern, F., “Unsteady Free-Surface Wave-Induced Separation: Coherent Vortical Structures and Instabilities,” *Journal of Fluid & Structures*, Vol. 25, pp. 343–363, 2009. [pdf link](#)
29. Kandasamy, M., Ooi, S.K., Carrica, P., Stern, F., Campana, E.F., Peri, D., Osborne, P., Cote, J., Macdonald, N., and Waal, N.D., “Evaluation of high-speed semi-planing catamaran,” 10th Int. Conf. on Fast Sea Transportation, Athens, Greece, 2009.
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31. Kandasamy, M., Wilson, R., Stern, F., “RANS Simulation of Free-Surface Wave-Induced Separation,” Proceedings 26th ATTC, Web Institute, Glen Cove, NY, 2001.
32. Xing, T., Kandasamy, M., and Stern, F., “Unsteady Free-Surface Wave-Induced Separation: Analysis of Turbulent Structures using Detached Eddy Simulation and Single-Phase Level Set,” *Journal of Turbulence*, Vol. 8, No. 44, pp. 1–35, 2007.
33. Xing, T., Kandasamy, M., Wilson, R. and Stern, F., “DES and RANS of Unsteady Free-surface Flows,” 42nd AIAA Meeting, Reno, 2004.
34. Castiglione, T., Kandasamy, M., Stern, F., and Bova, S., “URANS simulation for a catamaran advancing in regular waves,” 10th Int. Conf. on Fast Sea Transportation, Greece, 2009.
35. Huan, J., Kandasamy, M., and Lin, W., “High Fidelity Viscous Flow Simulations Applied to HSSL Design with CFDShip-Iowa,” 9th symposium on overset composite grid and solution technology, The Pennsylvania state university, 2008.
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37. He, W., Castiglione, T., Kandasamy, M., and Stern, F., “URANS simulation of catamaran interference,” 11th Int. Conf. on Fast Sea Transportation, Honolulu, Hawaii, 2011.
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39. Gorski, J., Miller, R., Carrica, P., Kandasamy, M., Stern, F., “The High Speed Sea Lift (HSSL) ships challenge effort,” Proceedings of the 2008 DoD High Performance Computing Modernization Program, pp. 83-88, 2008.
40. Gorski, J., Miller, R., Carrica, P., Kandasamy, M., Stern, F., “Powering and motion predictions of high speed sea lift ships,” Proceedings of the 2007 DoD High Performance Computing Modernization Program, pp. 455-459, 2007.
41. Miller, R., Carrica, P., Kandasamy, M., Xing, T., Gorski, J., and Stern, F., “Resistance predictions of high-speed mono and multihull ships with and without water jet using URANS,” 26th ONR Symposium on Naval Hydrodynamics, Rome, Italy, 2006.
42. Campana, E., Peri, D., Tahara, Y., Kandasamy, M., Stern, F., Cary, C., Hoffman, R., Gorski, J., and Kennel, C., “Simulation-based design of fast multihull ships,” 26th ONR Symposium on Naval Hydrodynamics, Rome, Italy, 2006.