Efficient constraint multi-objective optimization with applications in ship design

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Propositions

accompanying the dissertation

Efficient Constraint Multi-Objective Optimization

with Applications in Ship Design

by

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1. Finding optimal solutions is easier when an optimization problem has many objectives compared to when a problem has only a few objectives [Chapter 2].
2. Holistic ship design optimization by means of parameterization, evaluation, and optimization is often not truly holistic [Chapter 3].
3. The Inverted Generational Distance+ metric is inadequate for comparing algorithm performance [Chapter 5].
4. Setting up optimization problems so that the global optimal solutions can be found is more difficult than actually optimizing the problem [Chapter 6].
5. The perfect stopping criterion for continuous multi-objective optimization problems does not exist.
6. Constraints often prevent optimization algorithms from finding global optimal solutions.
7. Choosing a solution for the next design phase from a Pareto frontier is difficult.
8. Single-objective optimization is better suited for computationally expensive problems than multi-objective optimization.
9. AI-driven optimizing using real-world ship data is less reliable compared to optimizing designs with advanced ship design simulators.
10. The UoA makes RAP UC: The use of acronyms (UoA) makes reading academic papers (RAP) unnecessarily complex (UC).
11. Making decisions based on gut feelings is more satisfying than making data-driven decisions.

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