A Novel Design Framework for Generation and Parametric Modification of Yacht Hull Surfaces

Overview
✓ Parametric design techniques provide sophisticated platforms for designers in order to perform the design process efficiently.
✓ The use of the parametric design techniques is popular in ship and yacht modeling.
✓ We develop a design framework for the parametric generation of yacht hull models.
✓ Our design framework has the ability to generate any type of yacht hulls.
✓ By using our design framework designer can convert a specific type of yacht hull into a completely different type.

Design Process
Design process starts by dividing the yacht hull into three different regions: Entrance Region and Middle Region, Run Region.

Surface Models
3D surface model of yacht hull is created by generating Coons patches between the feature curves.

Shape Operators
- Elongation
- Widening
- Deepening
- Chine Remover/Inserter
- Entrance Angle
- Sheer Angle

Results

Investigators
Shahroz Khan, Erkan Gunpinar and Kemal Mert Dogan

Objective
To develop a novel design framework for the generation and parametric design modification of yacht hull surface.

Quality Criteria for Shape Operators
Shape operators are developed based on following quality criteria:
1. Geometric Continuity
2. Hull Fairness
3. Independent Modification of Parameters

Acknowledgement
This project was supported by The Scientific and Technological Research Council of Turkey (Project No: 214M333)