AUVSIM · DESIGN OPTIMIZATION

Design better AUVs. Before building them.

AI-guided concept exploration meets physics-based mission simulation.



FROM MISSION REQUIREMENTS TO A CONCEPT LAYOUT

AUVSIM combines AI-guided configuration exploration with six-degree-of-freedom simulation. It produces concept-stage vehicle layouts, with forecasts of range, endurance, handling and mission performance for each one.

01
Internal layout
Component arrangement

02
Control surfaces
Fin configurations

03
Propulsion
Propeller selection

04
Thrusters
Power and placement

ONE LOOP, FROM MISSION TO ANSWER

Mission
requirements

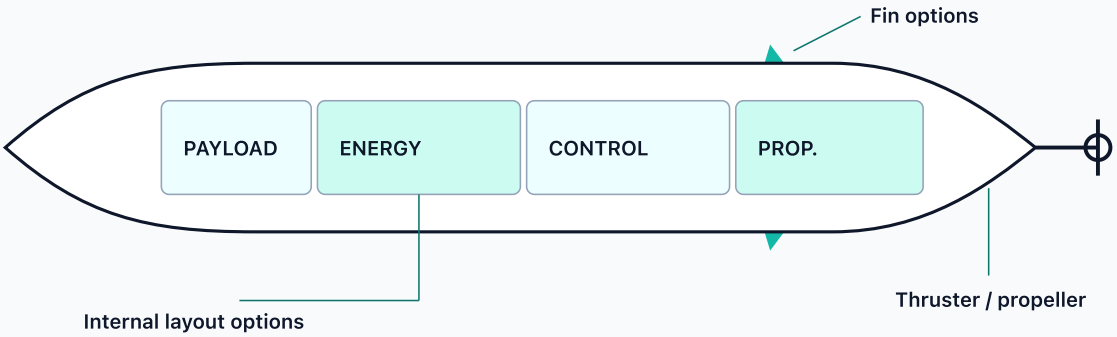
Design
exploration

Physics
evaluation

Output
layout + forecasts

WHAT THE OPTIMIZER EXPLORES

ILLUSTRATIVE VEHICLE ARRANGEMENT



Concept-stage output. The schematic is illustrative, not a software screenshot or a certified arrangement.

MISSION-PERFORMANCE INTELLIGENCE

Optimize the design. Predict the mission.

Range and endurance

Estimate energy demand and achievable mission duration across candidate configurations.

Handling and tracking

Examine manoeuvring, control response and expected route-keeping behaviour.

Terrain and sea state

Simulate obstacle avoidance sonar (OAS), terrain avoidance and susceptibility to waves.

WHY THIS MATTERS

In modular, long-endurance AUV development, design decisions are coupled: internal packaging changes the available volume, and control geometry and propulsor choices change handling and energy demand. AUVSIM makes these trade-offs comparable earlier in the development process.

TWO PRACTICAL WAYS TO ENGAGE

A. Paid proof of value

One representative vehicle. Clear success criteria.

01 Agree the baseline and constraints

02 Select the design variables allowed to change

03 Run the optimization and mission cases

04 Compare layout, range, endurance and handling

B. Licence and training

Put AUVSIM in your team's hands.

- ✓ Access to the optimizer and simulator
- ✓ Team onboarding and workflows
- ✓ Scenario and model setup
- ✓ Support for internal evaluation

Optimization and simulation results are provided for planning and information. Where a result informs a design or safety-critical decision, it is reviewed by a partner professional engineer.

SUGGESTED NEXT STEP

Start with a bounded study.

Define a bounded optimization study using a representative AUV and agreed performance objectives, then review the resulting design trades before choosing a broader licence.

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