

# Crowdsourced Robot Design Aided by Evolutionary Computation

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## **Abstract**

It has been shown that the collective action of non-experts can compete favorably with an individual expert or an optimization method on a given problem. However, the best method for organizing collective problem solving is still an open question. Using the domain of robotics, we examine whether cooperative search for design strategies is superior to individual search. We use an online robot simulation to determine whether groups of human users can leverage design intuition from others to focus an evolutionary search on relevant parts of a complex problem space. We show that individuals that work cooperatively with the aid of a simple evolutionary algorithm are better able to improve the design of robot movement than if they were to work with the evolutionary algorithm individually. This result suggests that evolutionary algorithms may play a role in collaborative problem solving.