

Behavioral Repertoires for Soft Robotics



EAGER: Behavioral Repertoires for Soft Robotics (NSF 1939930)

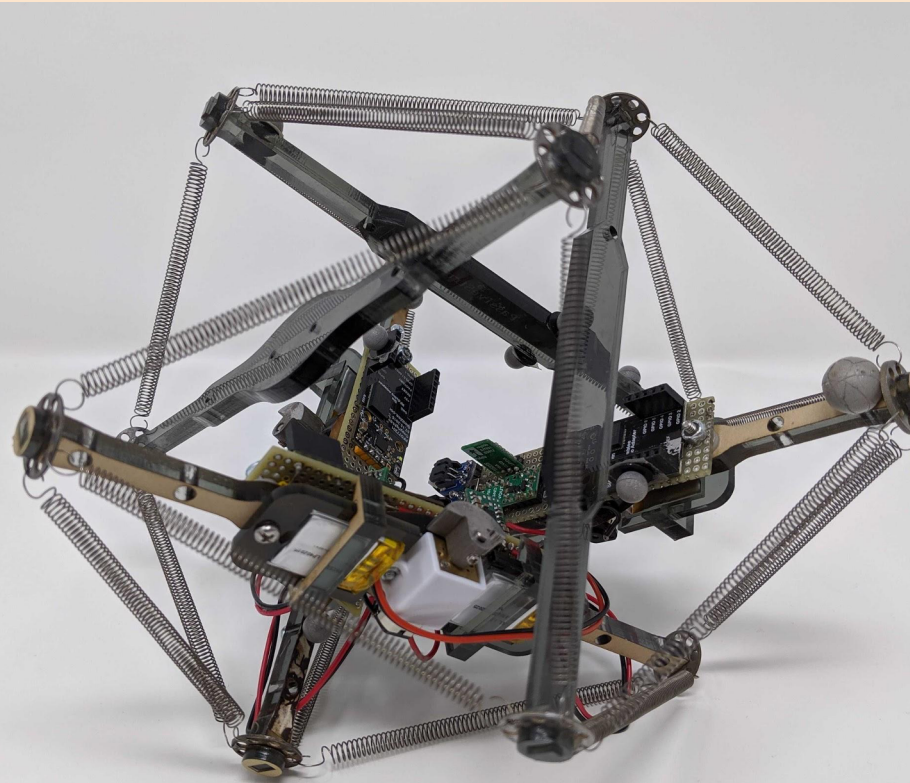
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Challenge

- Exploring and exploiting the full range of soft robotic dynamical behaviors in a data-efficient manner

Solution

- Novelty-Generating Quality Diversity Algorithms (QDA)
- MoCap
- Tether Free Tensegrity Robot

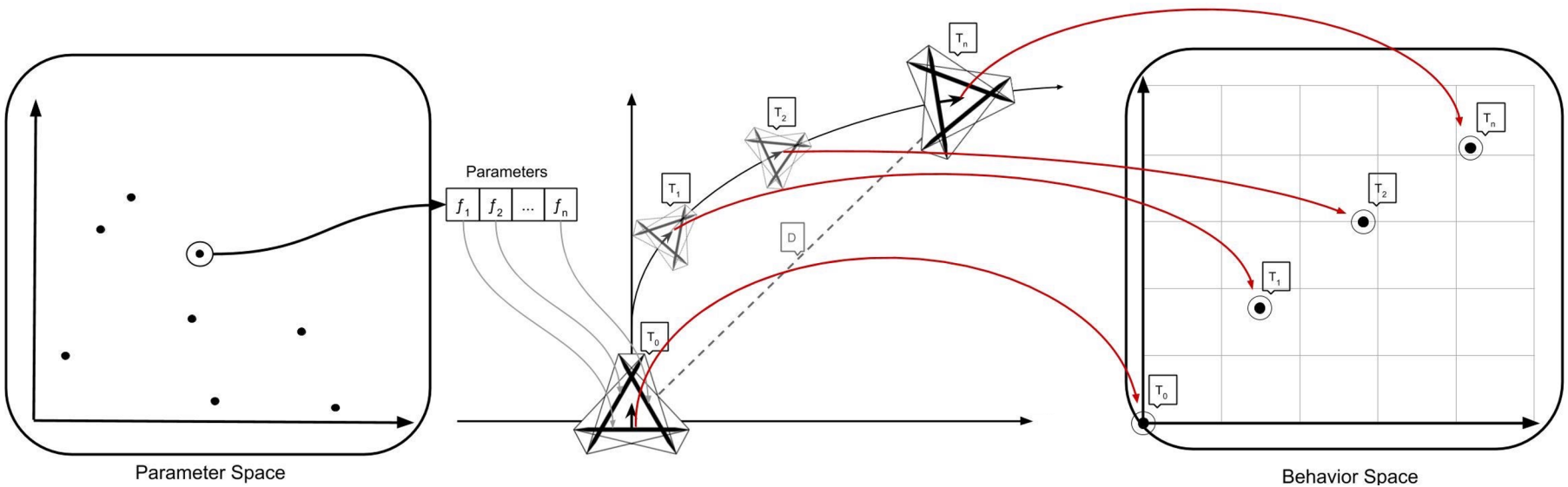


Scientific Impact

- new methods for complex soft robots to outperform conventional robots across environments, and resiliently adapt to conditions and damage.

Broader Impact

- flexibly respond to natural disasters
- other key national interests
- integrative undergraduate research and training



Prelim Results

- 110 unique behaviors
- higher average fitness
- 2x the rate of discovery vs random search

MapElite Behavior Map: 500 Trials

