Project Highlights

Technical Highlights
- First monolithic, high aspect ratio PDMS/Si mechanisms
- 100s of μJ stored for energy release in jumping microrobots

Broader Impacts
- Soft springs, grippy sidewalls, mechanical energy storage for various MEMS applications
- First truly mobile μrobots

Technical Highlights
- First all-polymer microfabricated actuators (both thermal and electrostatic)
- High aspect ratio conductive and non-conductive PDMS features

Broader Impacts
- Robust actuators for use in miniature robotics, medical devices, prosthetics, etc.

Technical Highlights
- New design for electrostatic inchworm actuators to improve force density, power density, and efficiency

Broader Impacts
- Efficient and scalable actuators for use in miniature robotics, prosthetics, etc.

Technical Highlights
- First fully integrated sub-cm² robot (sensing, actuation, control, power)
- An 8-cm high jump was demonstrated in response to a light stimulus

Broader Impacts
- New integration method for COTS electronics components and polymer/metal robots

Technical Highlights
- Low-cost, low-overhead fabrication of sub-cm robot systems
- Inclusion of thermal actuators and wiring on polymer platform

Broader Impacts
- Reduce design cycle time for sub-cm robots
- Experimentally investigate questions on scaling locomotion

Selection of References (since 2009)