Modular Snake Robots
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With a range of locomotion capabilities, modular snakes are among the most versatile robots available.

Snake robots are highly articulated mechanisms that can thread through tight spaces to reach locations that people and machinery otherwise cannot. No one mechanism can do it all, let alone with minimal invasiveness, like a snake robot!

Modular snakes have the ability to move through a myriad of terrains. They are the only robotic mechanisms that can traverse a field, swim through a small pond, breach a fence and then climb a flag pole. Potential applications range from search & rescue missions to battlefield medicine or infrastructure inspection.

TARGET POPULATIONS:

- Search and rescue workers
- Inspection crews (sewers, refineries)
- Researchers examining hard-to-reach environments

BENEFITS:

- Reaches places humans can’t
- Surveys dangerous situations
- Moves in / through areas in a minimally invasive manner

“Snake robots have the potential to revolutionize several applications and save lives in the process. By getting rescue workers farther and faster in disaster areas, snake robots could be the way of the future in urban search and rescue. The fact that we can extend the reach of anybody looking into hard-to-reach areas, such as natural science researchers and inspection workers, is a wonderful bonus.”

--Austin Buchan, Carnegie Mellon University

ABOUT THE RESEARCH
Central to the mission of the modsnake project is the development of novel gaits, cyclic inputs on the joint angles of the snake robot whose internal motions provide a net displacement in a desired direction. We have developed several gaits described by a small set of parameters. Although we make no claim to the full generality of our gait model, we have been able to mimic all biological gaits and develop those that go beyond biological capability.

TO LEARN MORE: Visit http://modsnake.com/

This technology is in early prototyping for integration.