

Modular Snake Robots for Urban Search And Rescue Operations

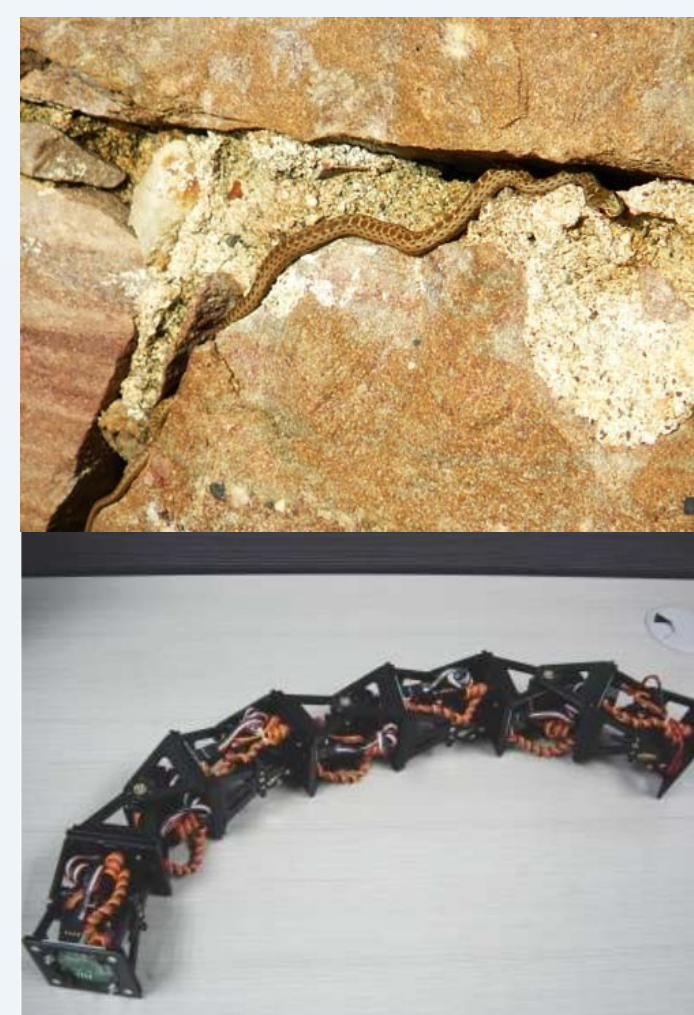
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The environment



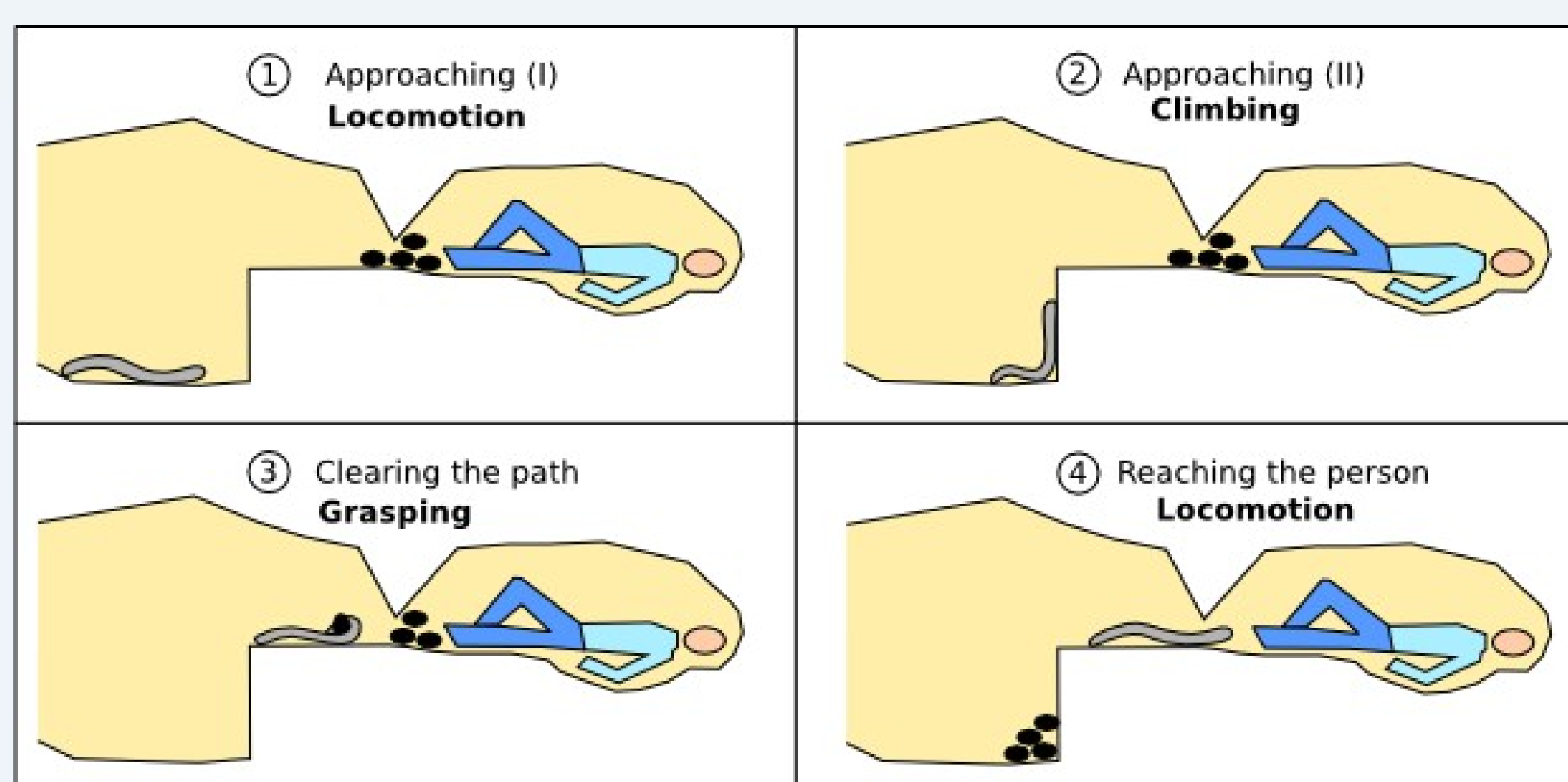
- Unstructured
- Chaotic
- Pieces of rubble
- Priority: Find survivals quickly

Snake robots



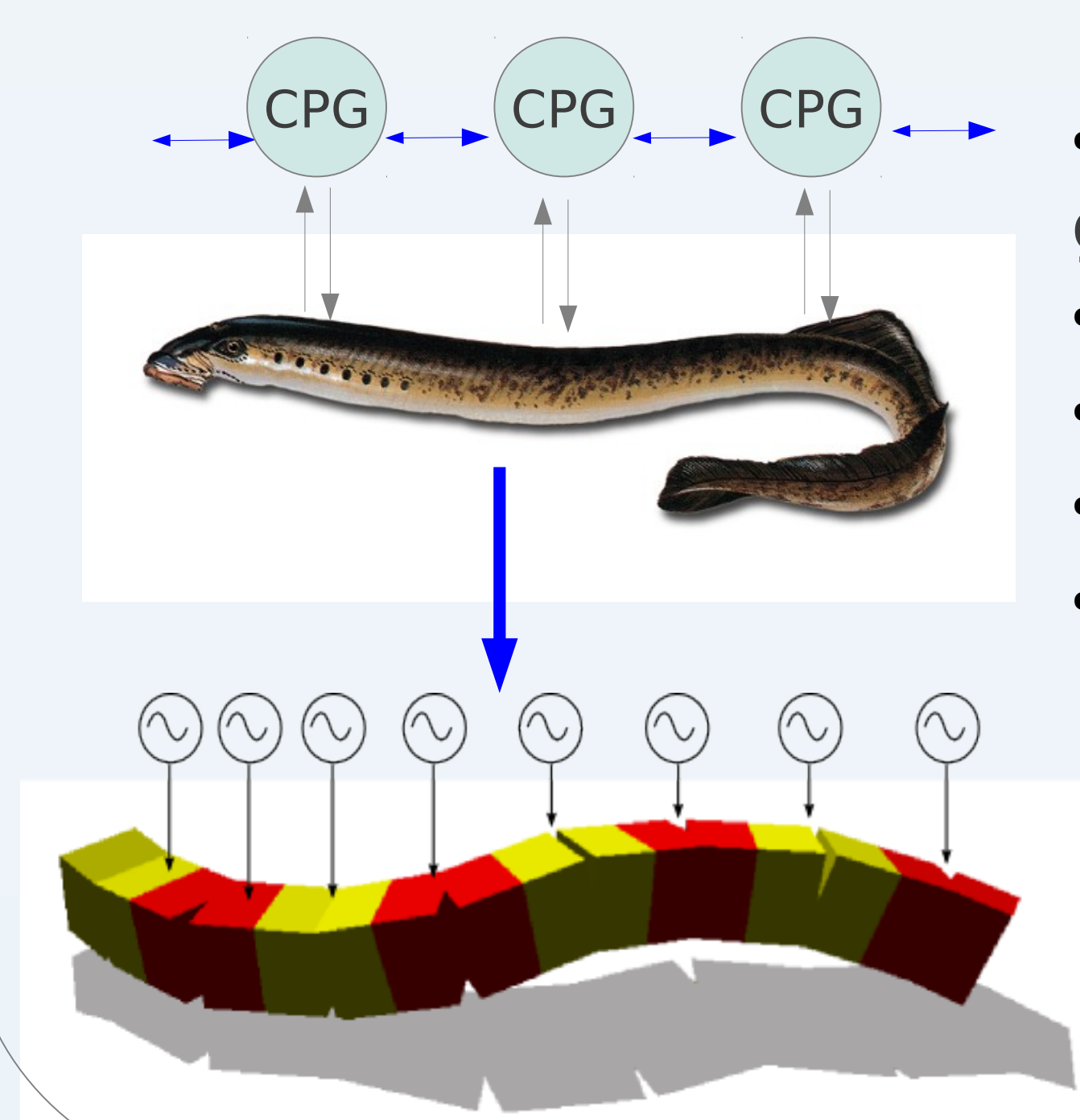
- Good candidates
- Small section
- Flexible body
- Modular
- Robust
- Low cost
- Versatile

Abilities



- Three capabilities needed: Locomotion, climbing and grasping

Bio-Inspired controllers



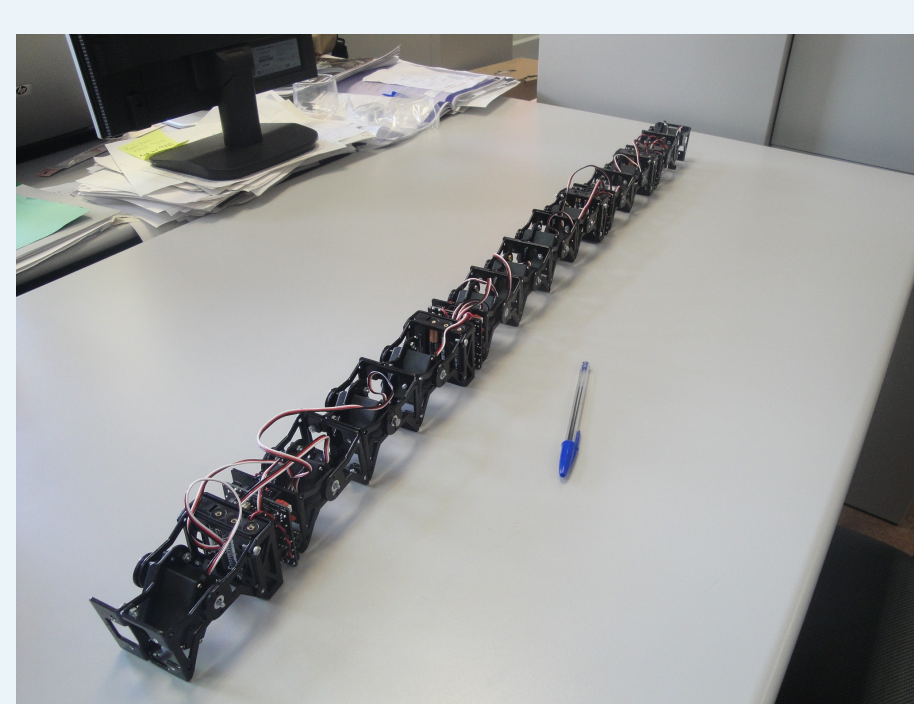
- Central Pattern generators
- sinusoidal generators
- Cheap to implement
- Robust
- Scalable

Modular Robotic platform

- Family of Y1 modules

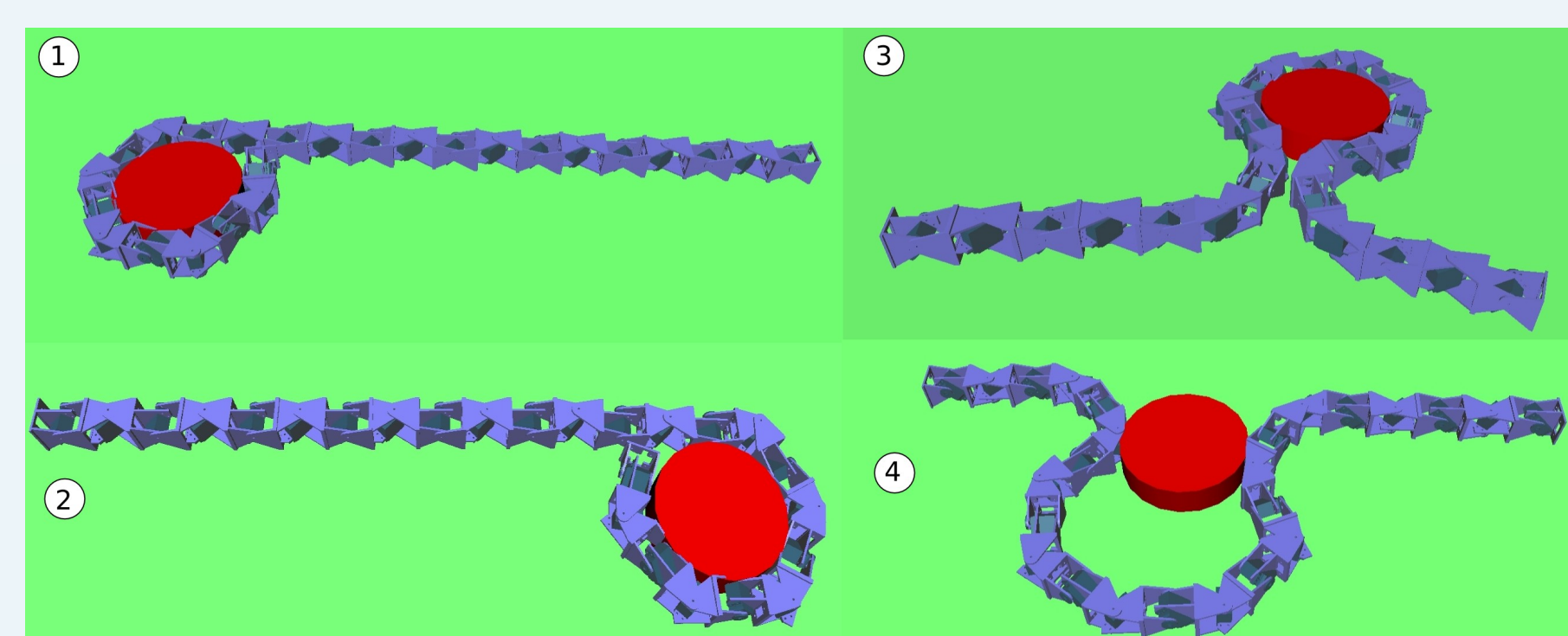


- Robots prototypes

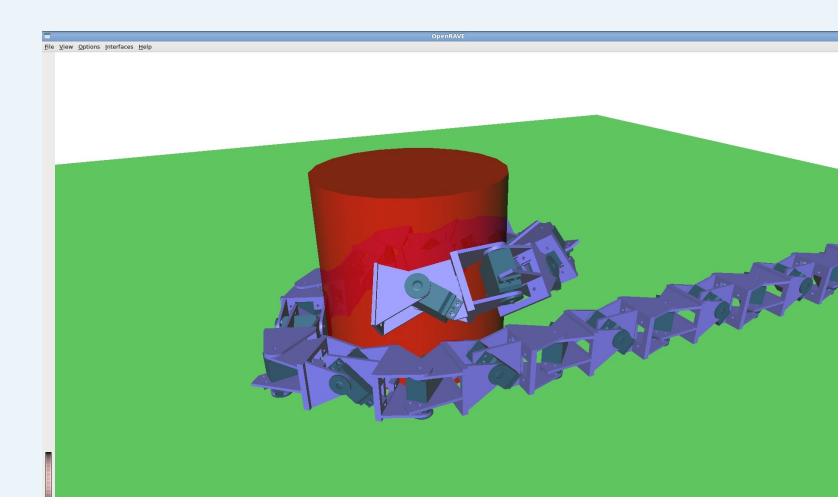


Experiments

- Grasping modes



- Locomotion gaits



RoboCity¹²