

The Swarm-bot: a swarm of self-assembling robots

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Abstract

In this talk I will present the swarm-bot, an artifact composed of a swarm of self-assembling robots called s-bots. The s-bots are mobile robots capable of connecting to, and disconnecting from, other s-bots. In the swarm-bot form, the s-bots are attached to each other and, when needed, become a single robotic system that can move and change its shape. S-bots have relatively simple sensors and motors and limited computational capabilities. A swarm-bot can solve problems that cannot be solved by s-bots alone.

In the talk, I will shortly describe the s-bots hardware and the methodology we followed to develop algorithms for their control. Then I will focus on the capabilities of the swarm-bot robotic system by showing video recordings of some of the many experiments we performed to study coordinated movement, path formation, self-assembly, collective transport, shape formation, and other collective behaviors.