### Distributed Rule Exploration Interface



By adjusting the rules controlling the behavior of the individual blocks children will discover how to control distributed systems of independent agents to produce shapes and gaits.

## Prior Work



Crystalline Atoms Rus, Vona Dartmouth



Telecubes Yim et al PARC

# Quik Blocks self-reconfiguring toy blocks

Michael Philetus Weller, Emre Mustafa Karagozler\*\*\*\*, Brian Kirby\*\*\*, Mark D Gross, Ellen Yi-Luen Do\*, Seth Copen Goldstein\*\*\*, Jason Campbell\*\*

\*ACME Lab, Georgia Tech \*\*Intel Research Pittsburgh \*\*\*Computer Science, Carnegie Mellon University \*\*\*\*Electrical and Computer Engineering, Carnegie Mellon University

#### Hardware Prototypes







1st generation radial self-aligner with integrated electrode panels

2nd generation separate gendered selfaligner and electrodes

3rd generation mirrored faces with radial spread self-aligners

### Prismatic Motion with Cubic Self-reconfiguring Modules





#### Latch States for Closed Lattice Motion



contracted
allows latch in neigh boring lattice position
to pass

# **Computational Design Lab**

School of Architecture, Carnegie Mellon University http://code.arc.cmu.edu



This material is based upon work supported by the National Science Foundation under Grant No. ITR-0326054.