Swarm User Interfaces

Björn Hartmann (EECS)
Sensor Swarms Can Engage Us Directly In Our World.
• **Swarm UIs**
  User interfaces built using sensor swarms

• **Swarm UI Design Tools**
  Authoring tools that enable [developers | designers | hobbyists] to create swarm UIs
Swarm UIs?
Swarm UIs: Early Examples
Swarm UIs: Early Examples

Inventing a Control Scheme with the Game Controller

Zhang, Zhang & Huang
Swarm UI Design Tools
Interrogating Swarms
UI Toolkits for Swarms

- **Challenge:** Writing interactive applications in traditional event handling UI frameworks leads to callback soup and code that is hard to maintain and extend.

- **Approach:** Declarative specification of interactions; automatic static analysis of conflicts and generation of recognizers.
Interaction Tablature
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Camera()  zoomCamera()
Audiences for Swarm Design Tools

• User Interfaces are Frequently Created by Interaction Designers (not EECS PhDs)

• Resurgence of DIY Movement: Makers

• To make swarm applications ubiquitous, enable these groups to experiment!
Prototyping Swarm UIs
Hobbyists Today, Inventors Tomorrow

Maker Faire

[Image of a crowd at a Maker Faire event]

[Image of an Arduino Uno board]

Work in Bay Area

>300,000
HCI Research in Sensor Swarms

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