Ad hoc Allocentric XR-Based Team Training with Human-in-the-Loop Avatars and Aware/Influential Agents

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College of Nursing — UCF

College of Engineering and Computer Science — UCF
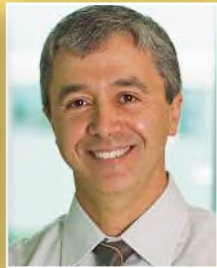
Institute for Simulation and Training — UCF
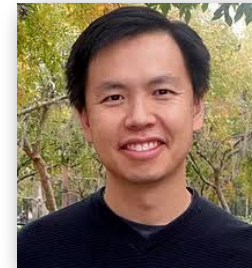
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Students on this work (Alphabetically)
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Medical Mannequins
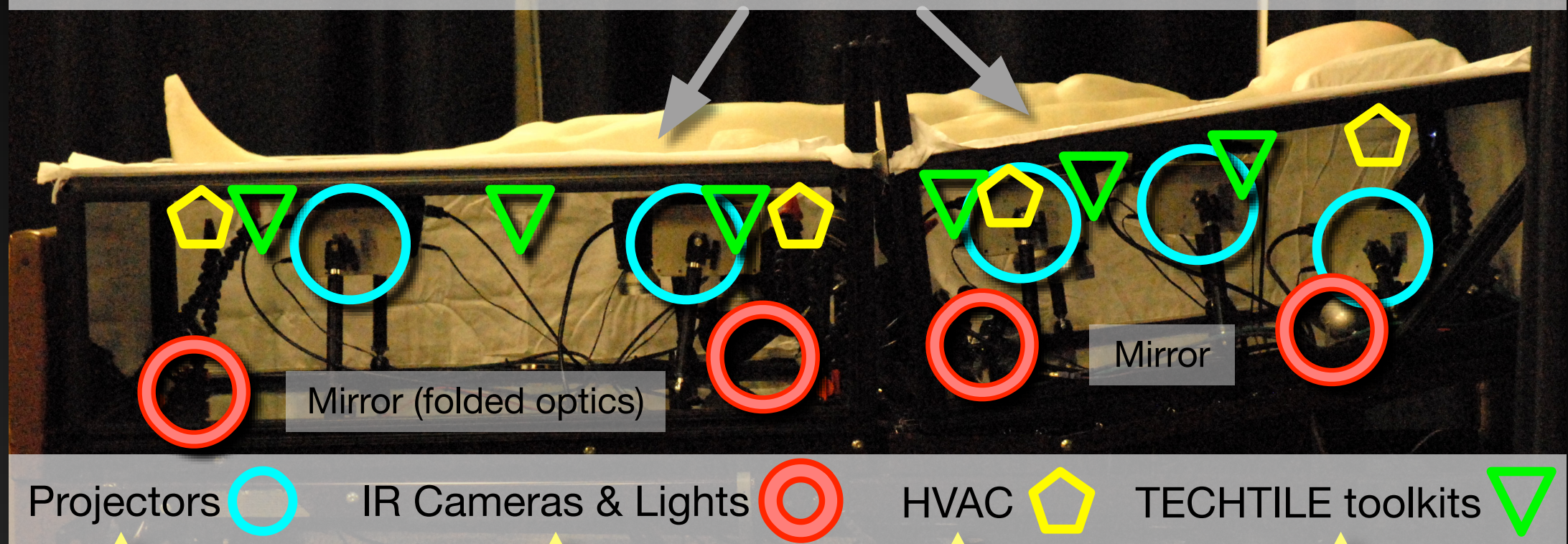## *Physical Shape and Virtual Physiology*

Mannequins are…mannequins

Physical-Virtual Patient

Welch, Daher, Hochreiter, Gonzalez, Cendan, Anderson, Diaz, et al.

Upper/Lower Interchangeable Human-Shaped Rear-Projection "Shells"

Mirror (folded optics)

Mirror

Projectors ⬭   IR Cameras & Lights ⬭   HVAC ⬠   TECHTILE toolkits ▽

Rear-projection imagery of patient

Touch Sensing

Body Temperature

Pulse, heart, etc.

Pediatric Version

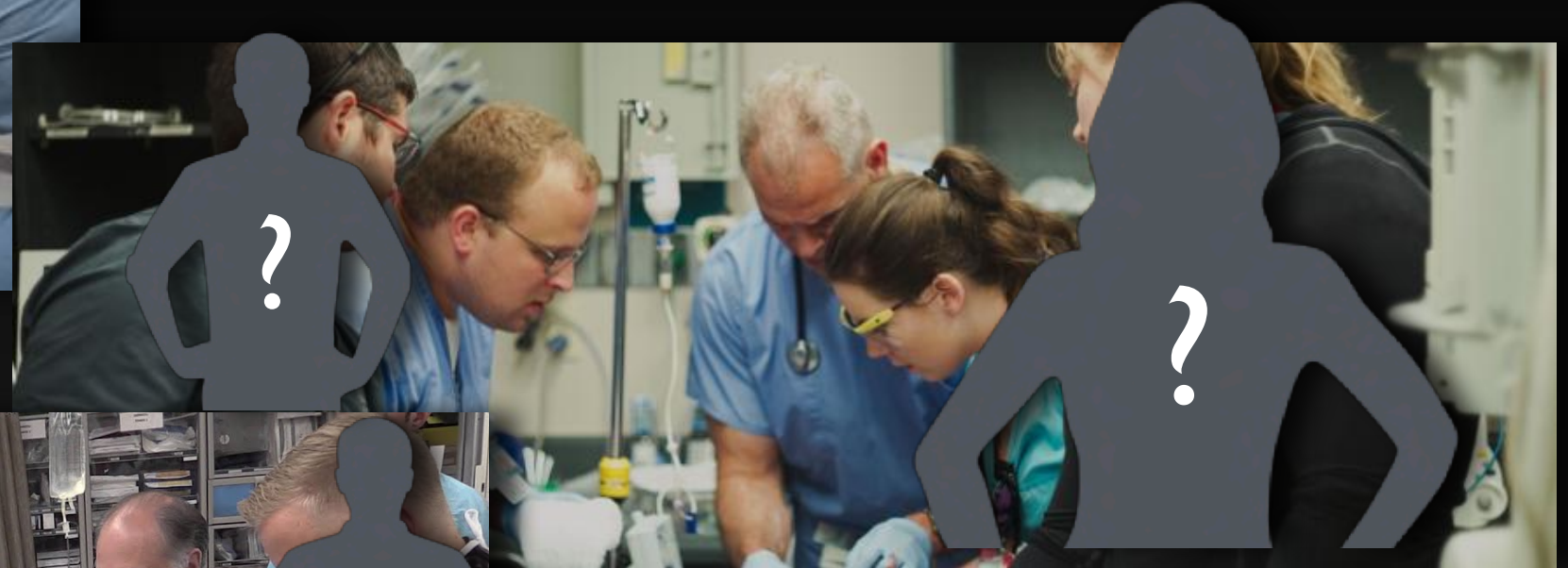Patient Shell

Temperature Control

Pulse Actuator

Projectors

Audio
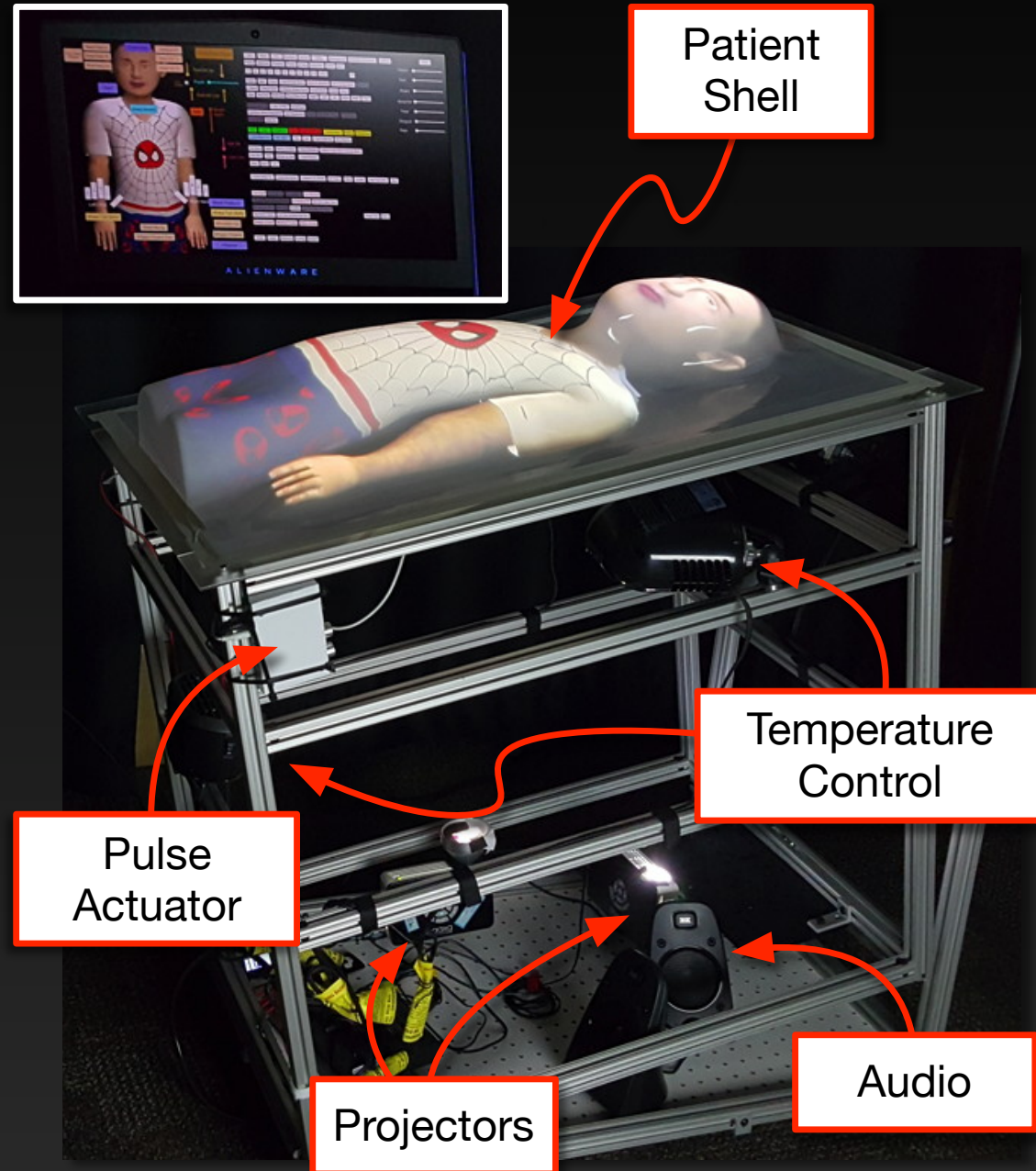
UCF Nursing: Laura Gonzalez, PhD, ARNP; Mindi Anderson, PhD, ARNP and Desiree Diaz, PhD, RN-BC. **UCF Medicine:** Juan Cendan, MD.

Trauma Team Training

TeachLive—A "Flight Simulator" for Teachers
(Dieker, Hynes, Hughes, et al.)

Human-in-the-Loop

Mixed Agency

Geppetto: An environment for the efficient control and transmission of digital puppetry (Mapes, Tonner, and Hughes 2011)

VR-Based Team Training with Human-in-the-Loop Avatars

Aware/Influential Avatars

AI

IoT

Robotics

Virtual Curtains & Paper

Real Fan

Virtual Human "Sarah"

Human Participant

Actuated Surface

Visually embodied IVA

Lamp

Door

Amazon Echo Plus

Participant

The "Wobbly Table"
(Lee, Kim, Daher, Raij, Schubert, Bailenson, and Welch, 2016)
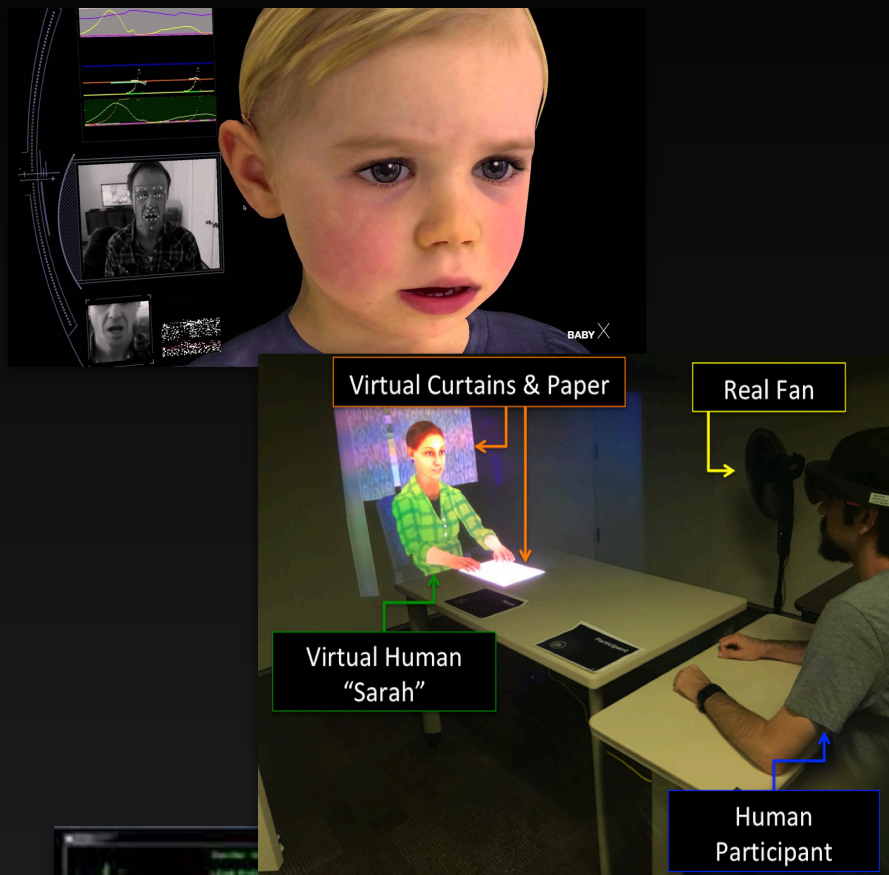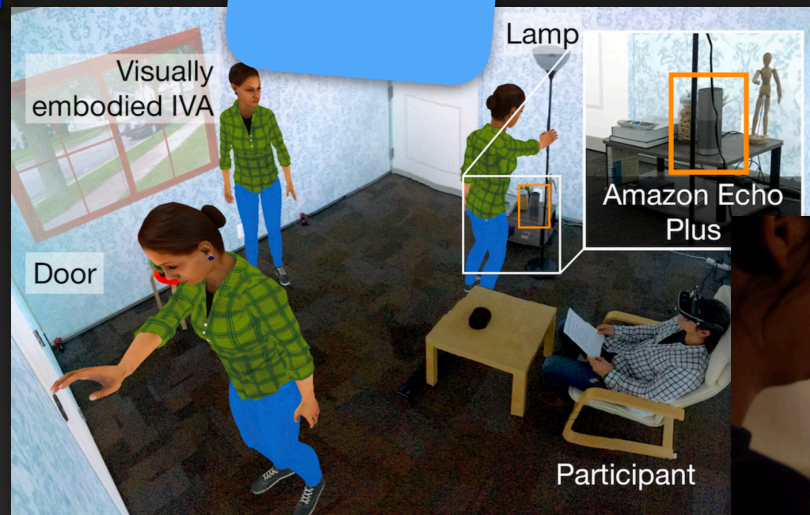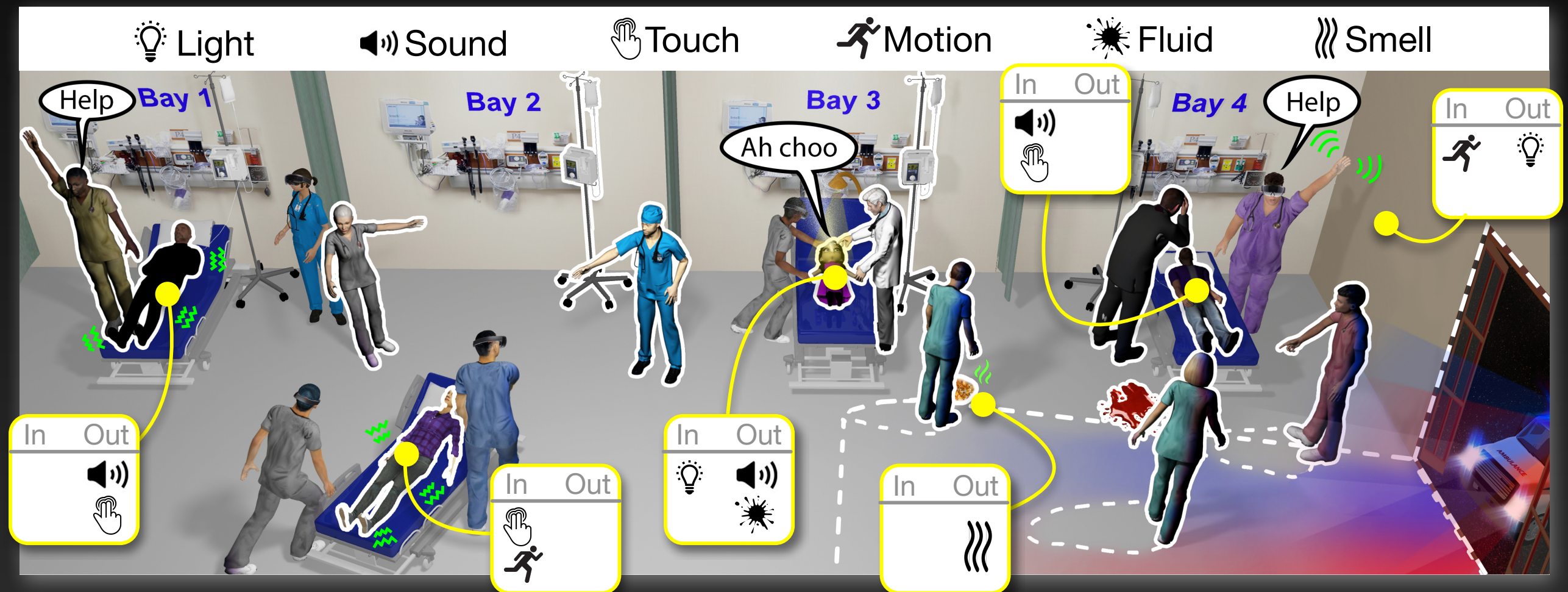
Adapt to emotion, frustration, performance, …

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Simulation Resources—Physical to Virtual

- Medical "simulation" (training) is huge and growing

- Steering Committee for AdventHealth Simulation Center

- Major effort to catalog all available simulation resources
  - **Inventory** of mannequins, equipment, rooms
  - People (trainers, SMEs, actors/standardized patients)
  - **Scenarios…**

(End)

Inventory should encompass real and virtual

Scenario design should encompass real and virtual

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