Morphological Spaces:

Human centered design and development of building performance optimization.

PROBLEM

This work is based on the idea that architecture has cognitive consequences. For example, spatial primitives such as the size of a room, its shape, and the color and brightness of its interior walls impact the cognitive state of its inhabitants, and therefore the way in which they navigate, and make decisions within it.

GUIDING QUESTIONS

This project asks how the design of a morphological space can help its inhabitants attain enhanced cognitive state.

How does spatial contour, brightness, and texture affect cognitive style?

How can we decode behavior using embodiment and gesture?

How can we map spatial affordances in real-time?
**PROJECT DESCRIPTION**

This project aims to develop a methodology to analyze inhabitants’ cognitive behavior in correlation to their spatial context, and thereby develop a framework for the analysis and optimization of interactive architectures. Using evidence of embodied cognition from cognitive science, we hope to propose the design and simulation of an intelligent morphological space—an interactive space that can sense its inhabitants’ behavior and then morph its spatiality to provide a cognitively optimized environment.

**IMPACT**

This project seeks to equip architects with a scientific framework for integrating human cognition at the early design stages towards the development of intelligent buildings. This work will also contribute to real-time affordance mapping as a deconstruction of the phenomenological sequence of an agent. Implementation of this concept will yield the blueprint of a real-time interactive space, which has important design implications for performance-optimized environments.

| Provide a framework for the implementation of interactive spaces. | Enable human centered design, planning and performance optimization of buildings. |

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