"LOW-LEVEL" COGNITIVE SKILLS

ANIMALS, AI AND THE FUTURE WORKPLACE

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LEVERHULME CENTRE FOR THE FUTURE OF INTELLIGENCE,
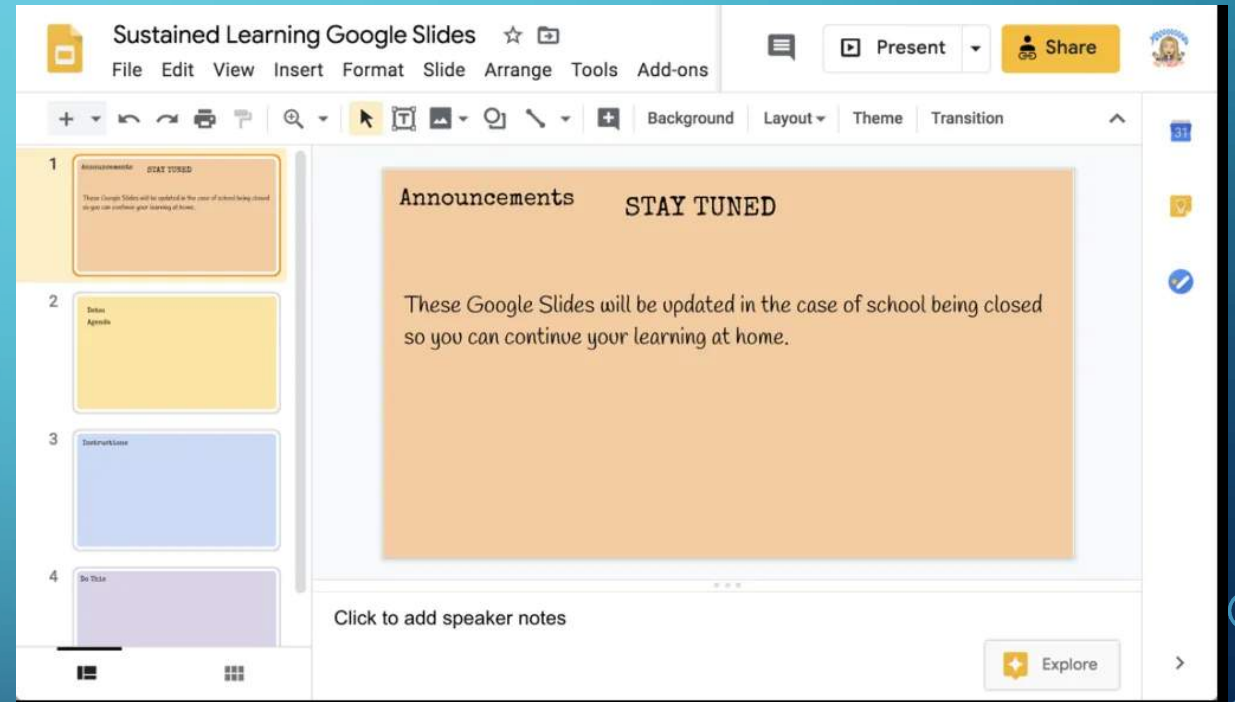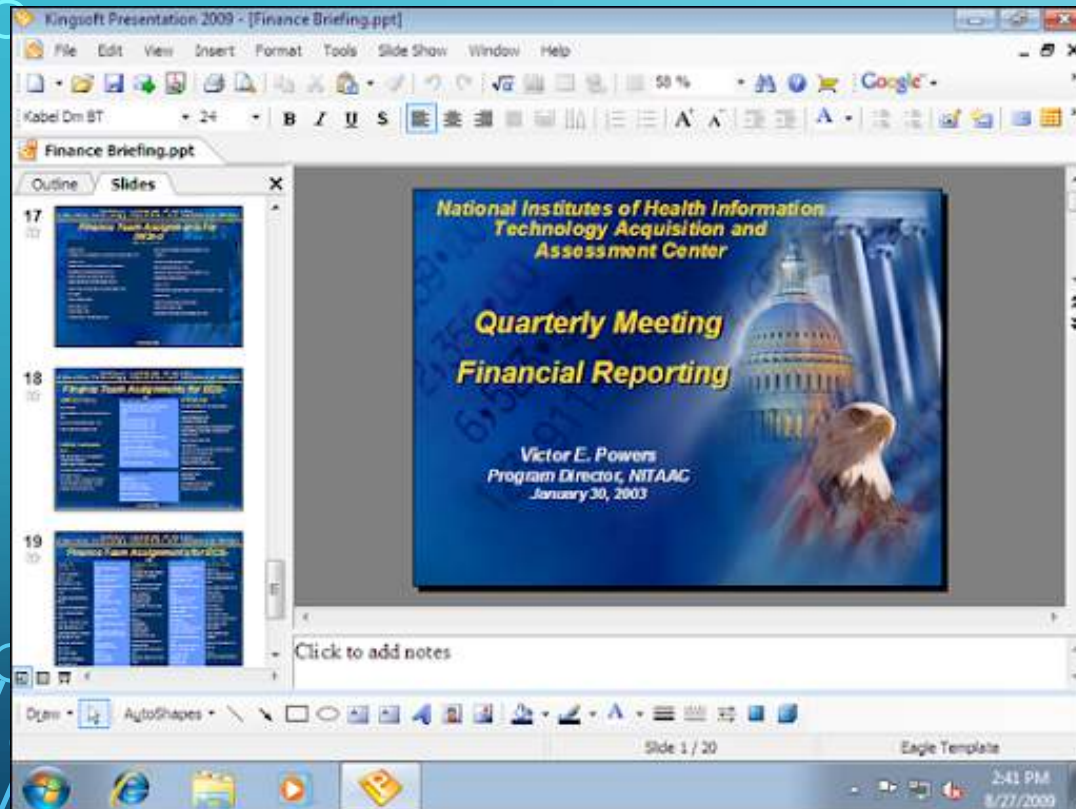
UNIVERSITY OF CAMBRIDGE, UK

Where to put the cup?

How to navigate there?

What to do about obstacles?

NOT JUST ROBOTS

What is a "slide"

What is a "title"?

BASIC "COMMON SENSE" SKILLS

Very little variation in human adults, but active area of research in animals and young children.

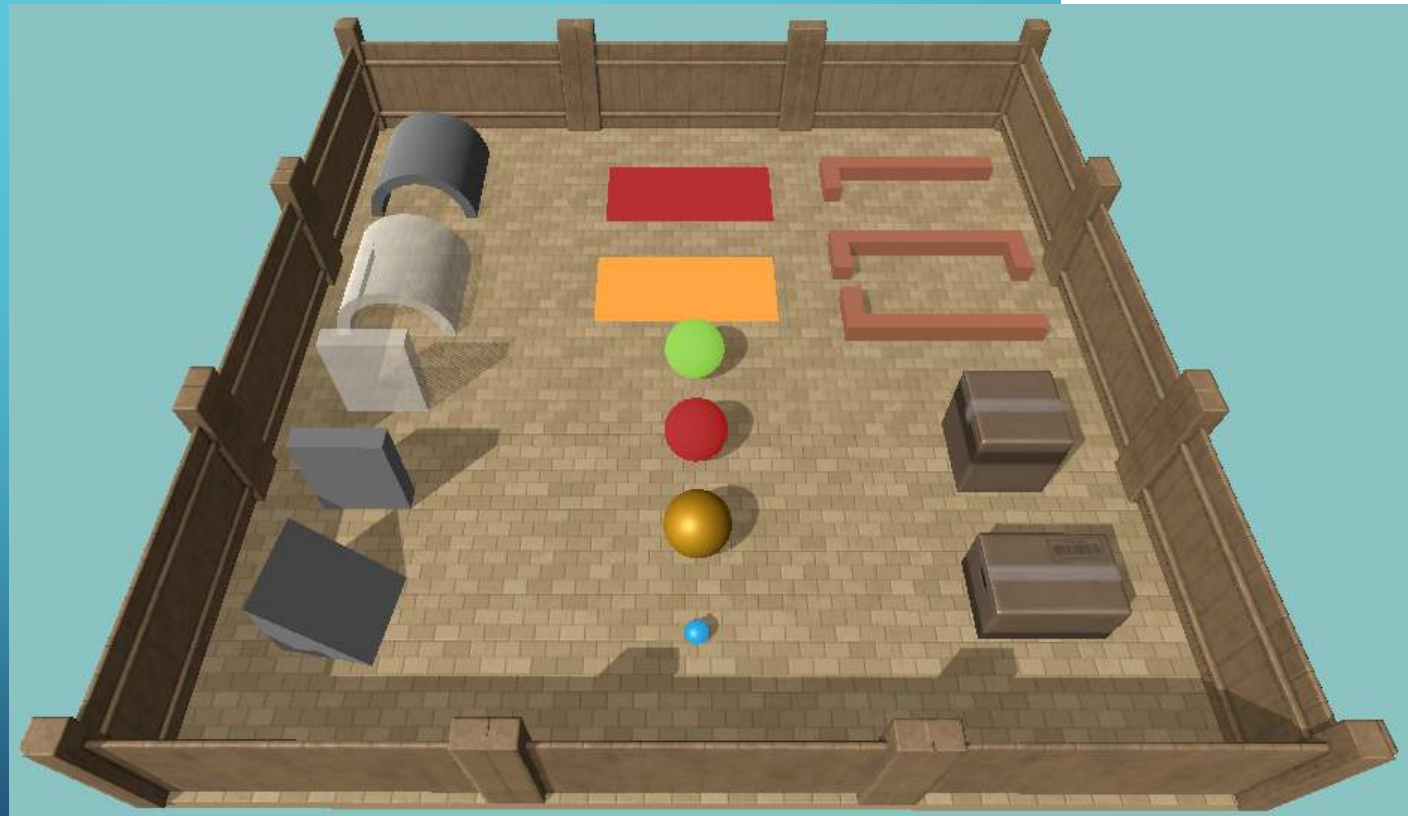Represent huge step-changes in development: e.g. "object permanence"

Fundamental part of everyday(and professional) functioning

THE ANIMAL AI OLYMPICS

- Implementing tasks from animal cognition for AI

- All tasks built from a limited number of objects

- All objects available for training, but tasks withheld.

Crosby, M., Beyret, B., Shanahan, M., Hernández-Orallo, J., Cheke, L., & Halina, M. (2020). In NeurIPS 2019 Competition and Demonstration Track (pp. 164-176). PMLR.
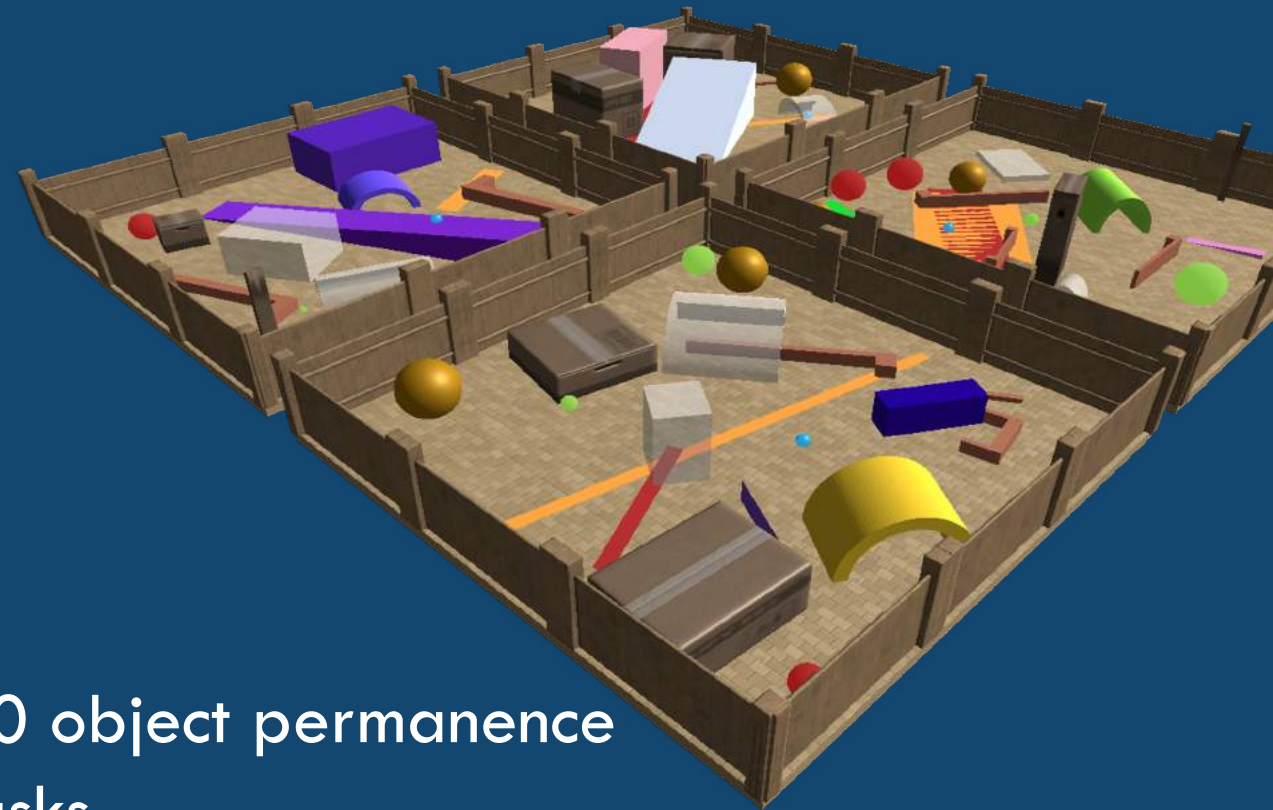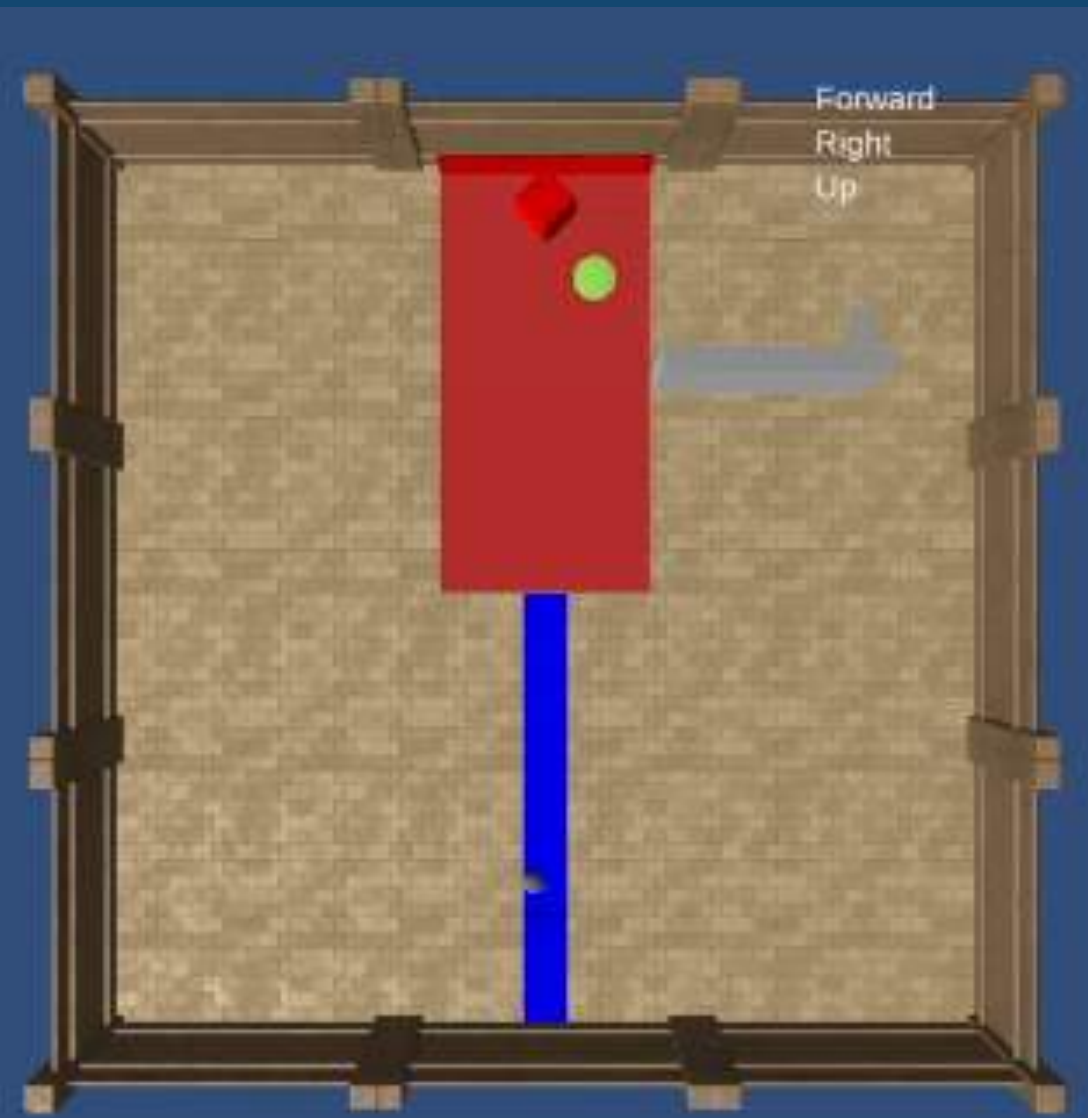
- 90 object permanence tasks
- top 10 agents solve 8.6%
- Top agent solves 25.6%

No agents demonstrated this skill

Crosby, M., Beyret, B., Shanahan, M., Hernández-Orallo, J., Cheke, L., & Halina, M. (2020, August). The animal-ai testbed and competition. In *NeurIPS 2019 Competition and Demonstration Track* (pp. 164-176). PMLR.

PROVIDES THE BASIS FOR MEANINGFUL COMPARISON

Forward
Right
Up

Ruffed lemur