

## DEEP ACTIVE INFERENCE FOR ENGAGEMENT RECOGNITION IN ROBOT-ASSISTED AUTISM THERAPY

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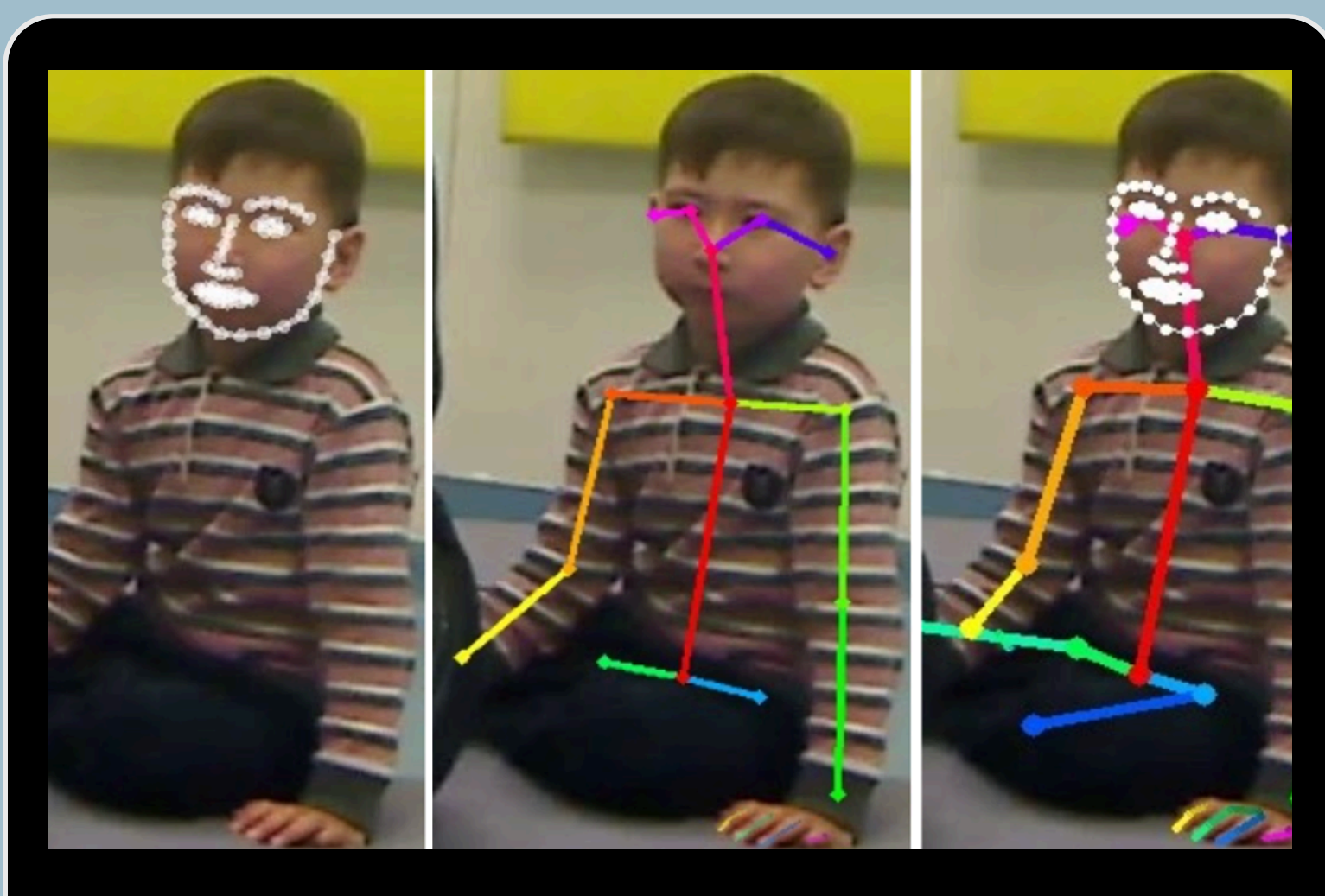
### PROJECT GOAL

- AI-driven **Robot-Assisted Autism Therapy (RAAT)** system:
  - Real-time assistance to therapists
  - Leverages prior knowledge
- **Deep Active Inference (dAIF)** model:
  - Combines active inference with deep learning
  - Scales up to large policy and state spaces

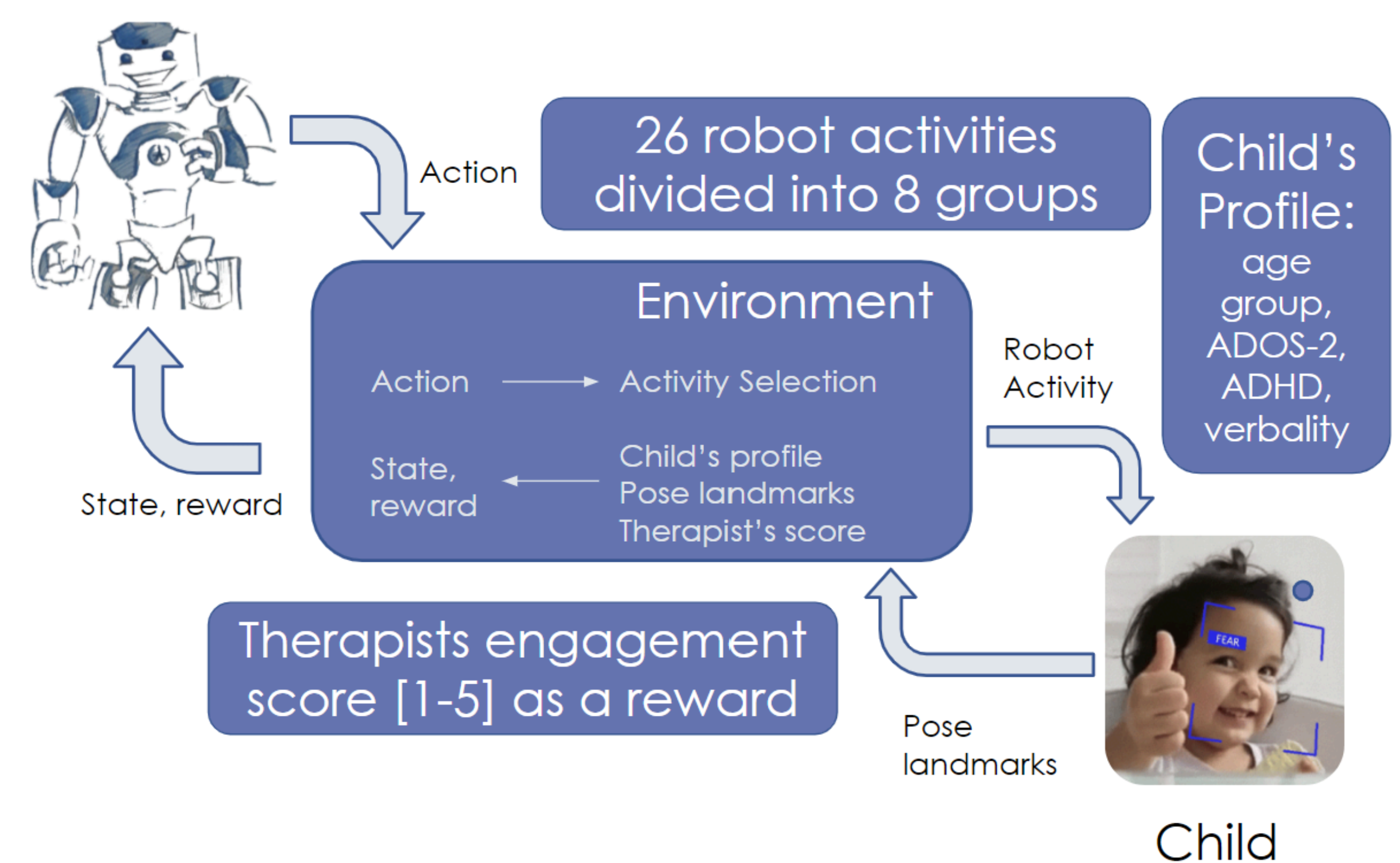


### QAMQOR DATASET

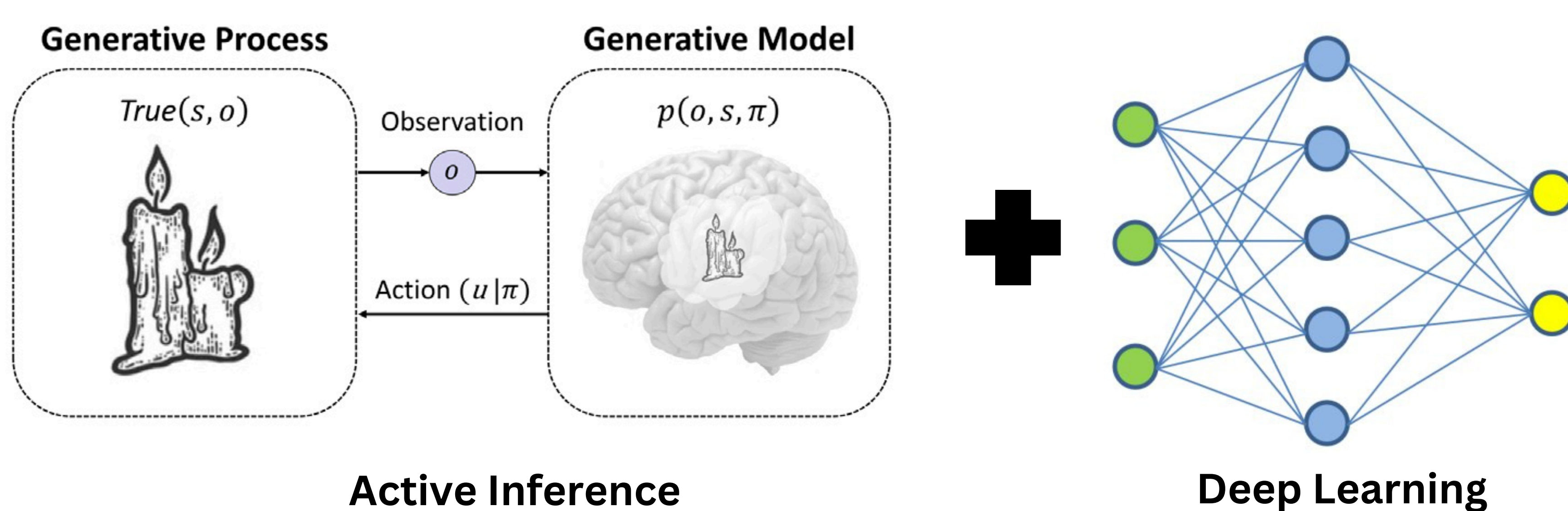
- 34 children with autism
- 26 multi-purposeful robot activities
- Features extracted with OpenPose



### SYSTEM DESIGN

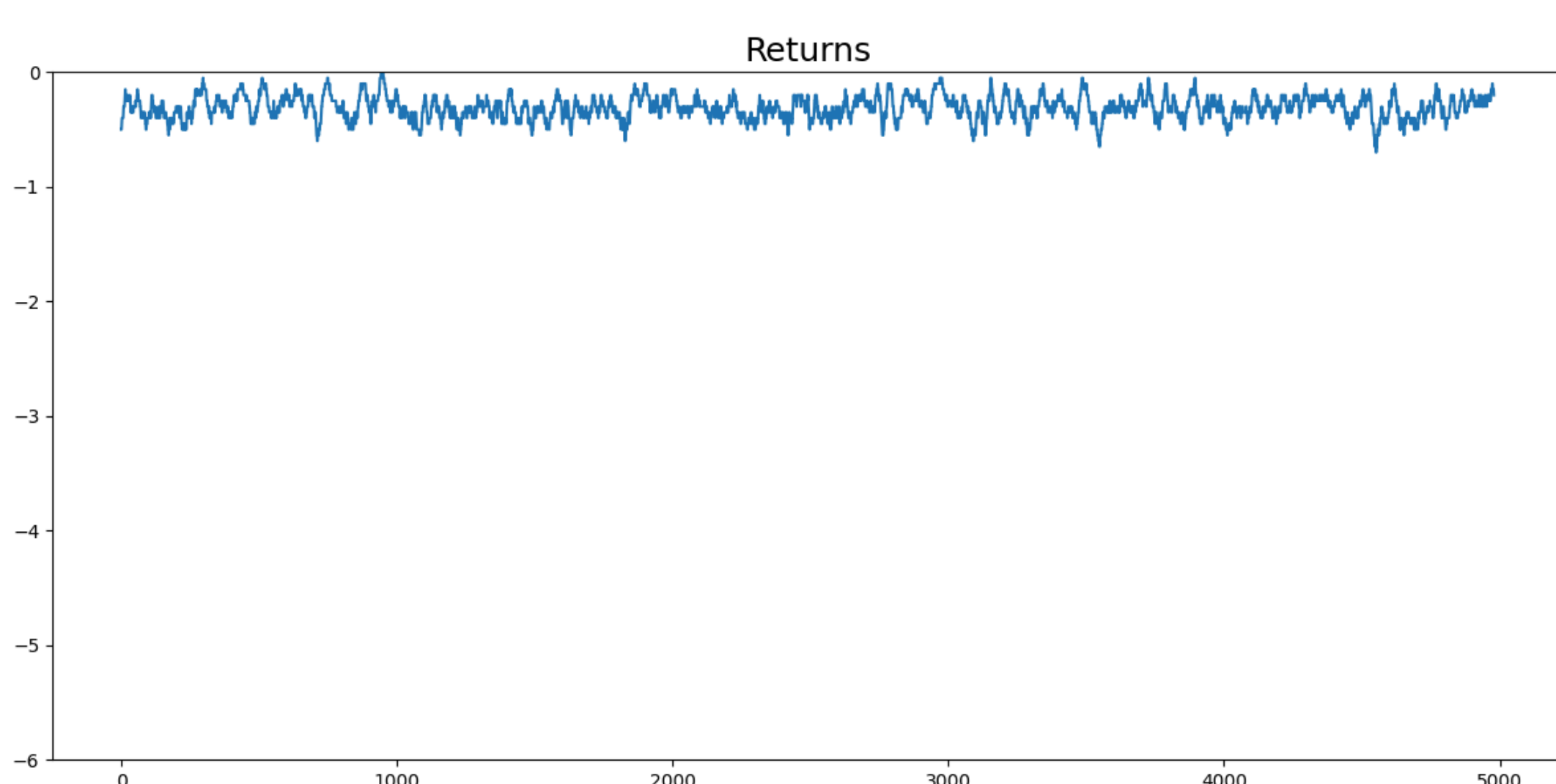


### DEEP ACTIVE INFERENCE MODEL



### EXPERIMENTS WITH DIFFERENT STATE SPACES

- **All** keypoints (face, body, hands)
- Only **face**
- **Face + Hands**
- **Face + Body**



### RESULTS

**Face and Face+Body** demonstrated the most stable performance

Models that included **Hand** landmarks experienced an initial drop

**All** models delivered stable and consistent results in the long run

### REFERENCES

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