Use Case: Robotic Surgery

Human-AI Coupled Systems for Collaborative (Micro)Surgeries

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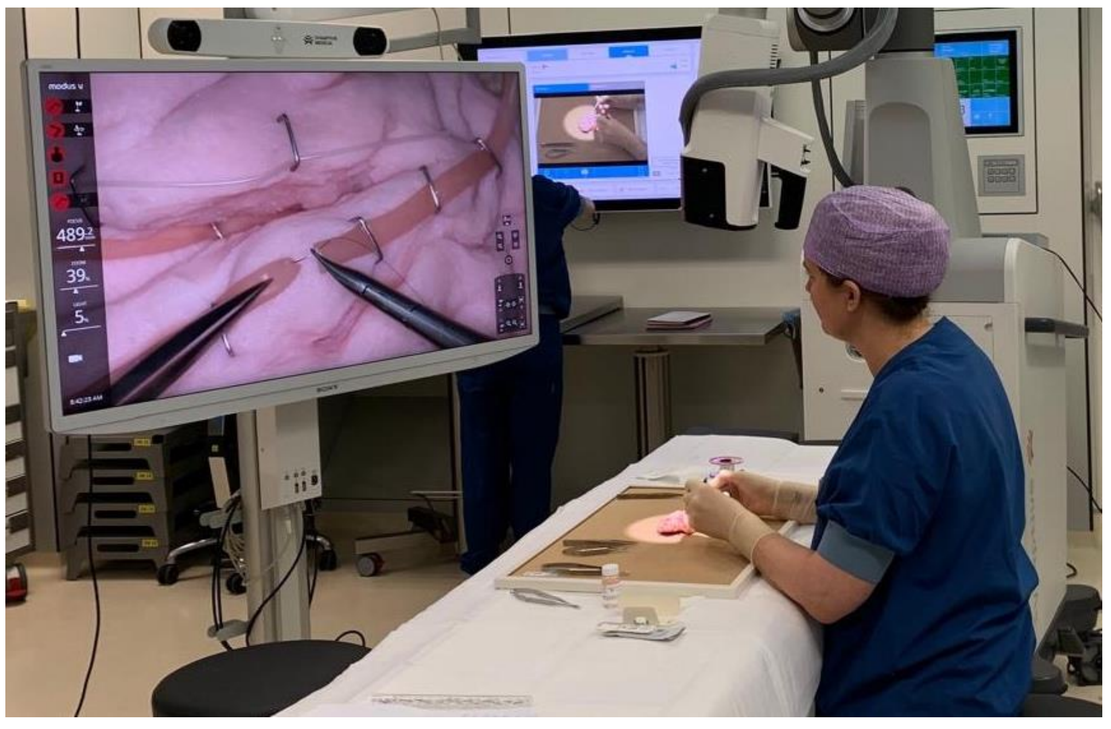
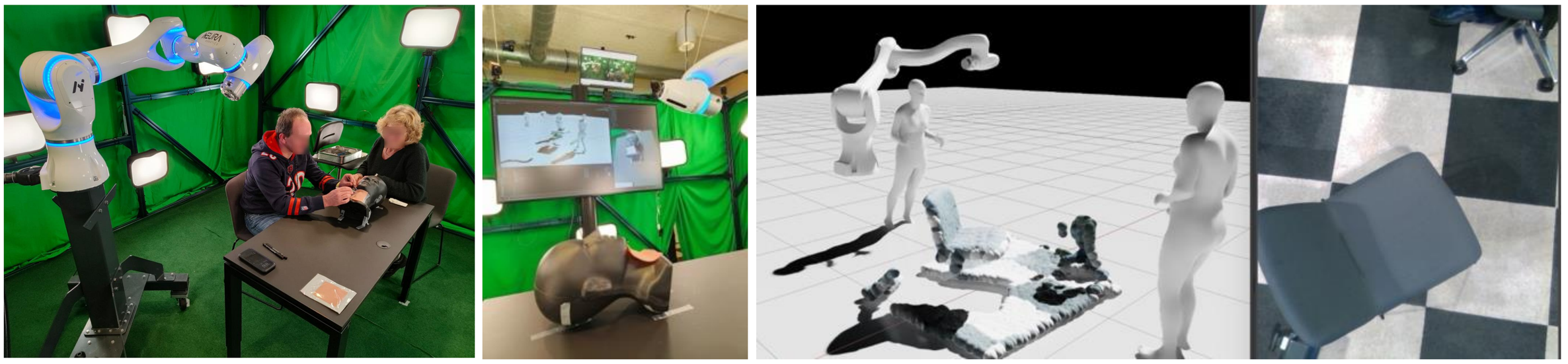
MISSION

We envision a future where hybrid intelligence systems transform healthcare; with humans and agents working collaboratively within surgical environments.

Our mission is to create a **human-agent coupled system** capable of safely and effectively performing complex tasks in (micro)surgical environments. Specifically, the agent here refers to an exoscope on a robotic arm. Effective collaboration requires both the surgical team and the robotic agent to **complement the skills** of the others in a dynamic environment.



COMPLETED PROJECTS

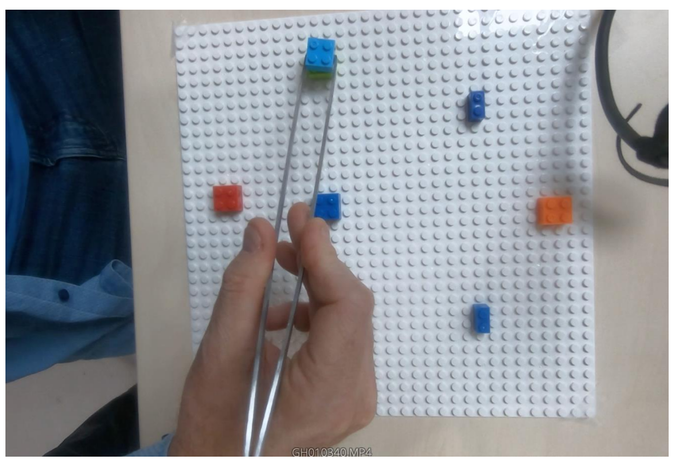


Infrastructure Setup: Twin Operation Room at TU Delft

- GDPR-compliant human-agent interaction data collection
- Currently supporting non-realtime data collection and playback within ISAAC Sim, serving as a digital twin
- “Thinking as acting in the imagined space” – Konrad Lorenz

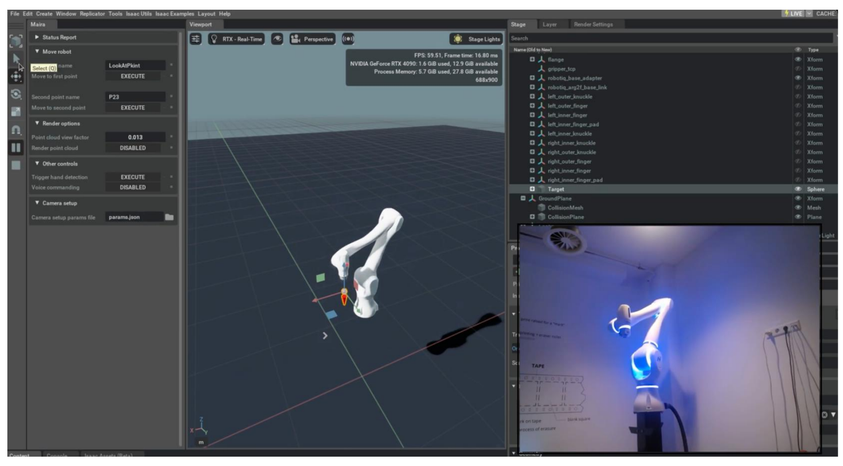
PLANS FOR THE COMING YEAR

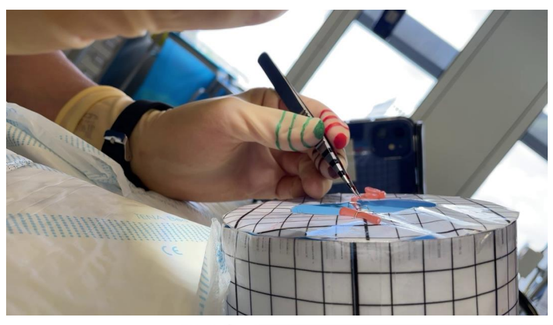
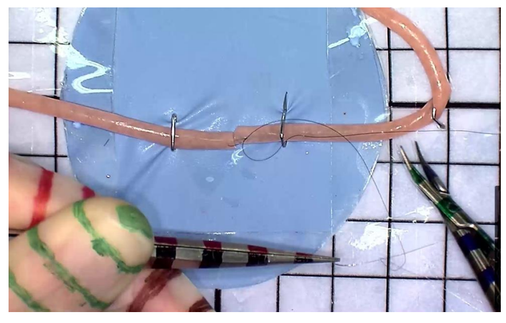
Position Paper on Open Research Questions and Goals



WoZ experiment at UTwente

Improve Infrastructure for Live Data Collection and Interaction



Enable Synchronous / Live Interaction in Twin OR

Analysis of Erasmus MC data for multi pov coordination