Scaling Context-Aware Task Assistants that Learn from Demonstration and Adapt through Mixed-Initiative Dialogue

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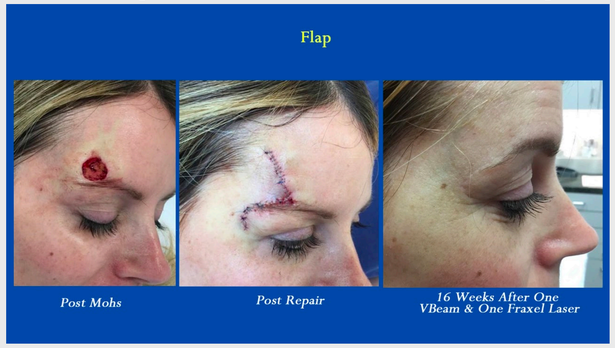
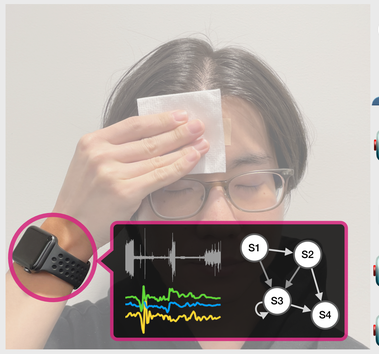
Project Page →
https://rikky0611.github.io/projects/prism.html

Supporting everyday tasks with **context-aware intelligent assistants**

Post-operative skin cancer patients





Question Answering

What should I do next?

Please remove the gauze

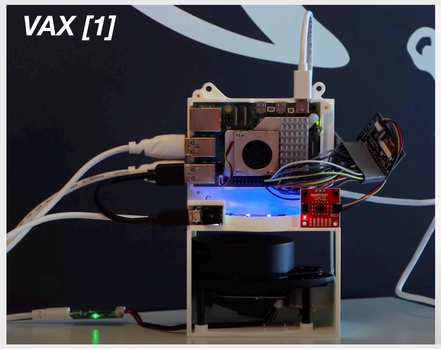
Proactive Intervention

Have you applied Vaseline?

What are you doing?

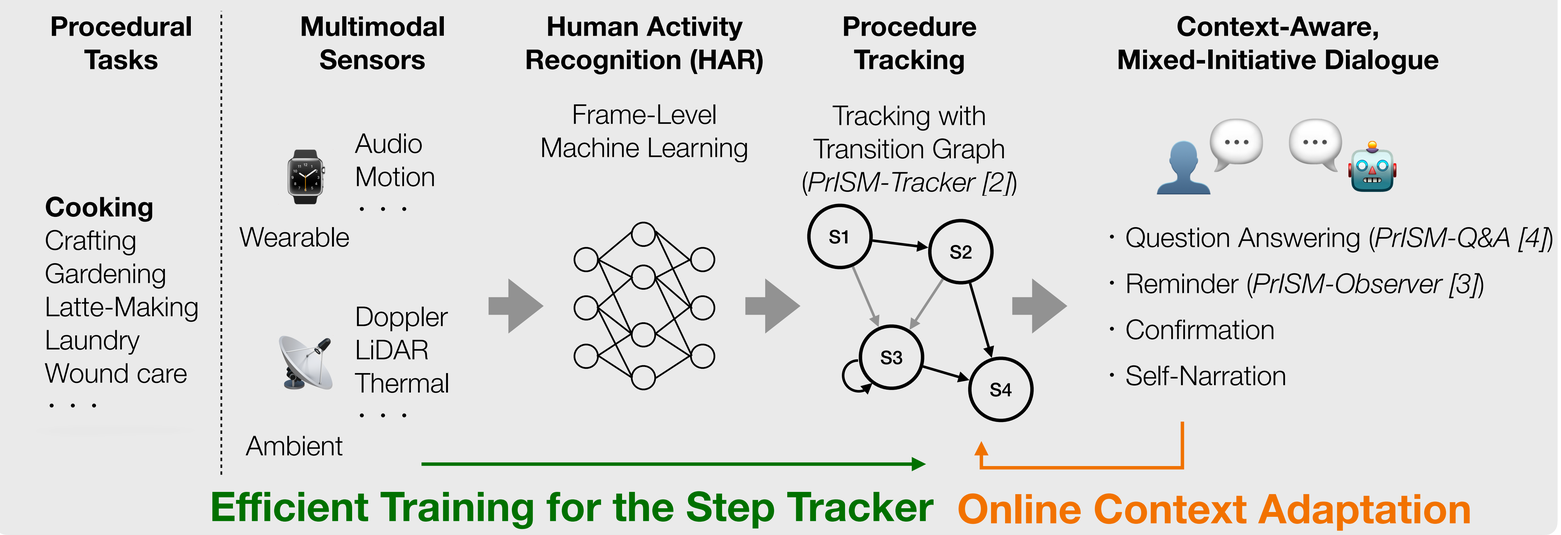
Board-Certified Dermatologist Explains Everything You Need to Know About Mohs Skin Surgery, https://www.youtube.com/watch?v=Tjw9xZMU8Dg

People with dementia

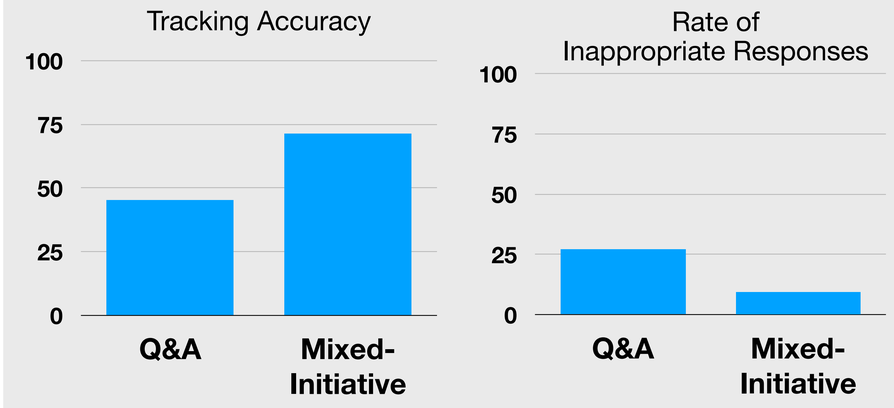


Project Autonomous: https://www.youtube.com/watch?v=DKh6j1fpYpA

Framework



Evaluations in 7 tasks, 190 sessions



[1] Patidar et al., **VAX**: Using existing video and audio-based activity recognition models to bootstrap privacy-sensitive sensors. **IMWUT 2023**
[2] Arakawa et al., **PrISM-Tracker**: A framework for multimodal procedure tracking using wearable sensors and state transition information with user-driven handling of errors and uncertainty. **IMWUT 2022**
[3] Arakawa et al., **PrISM-Observe**r: Intervention agent to help users perform everyday procedures sensed using a smartwatch. **UIST 2024**
[4] Arakawa et al., **PrISM-Q&A:** Step-aware voice assistant on a smartwatch enabled by multimodal procedure tracking and large language models. **IMWUT 2024**
[5] Arakawa et al., Scaling Context-Aware Task Assistants that Learn from Demonstration and Adapt through Mixed-Initiative Dialogue. **UIST 2025**