

TRUST-XR: Adaptive Therapeutic XR Scenarios for Enhancing Confidence and Well-Being

Overview

TRUST-XR introduces an immersive extended reality (XR) system designed to support individuals in navigating emotionally demanding situations through adaptive, guided therapeutic experiences. The system is intended for use in controlled indoor settings such as clinics, labs, or research venues, and facilitates real-time interaction between users and remote therapists. TRUST-XR leverages XR's immersive potential to create a safe and responsive environment for enhancing emotional regulation, building confidence, and supporting behavioural adaptation.

Background

Conventional therapeutic practices often encounter limitations due to real-world constraints such as accessibility, safety, and ethical considerations. XR-based interventions address these barriers by offering controlled, immersive experiences that simulate real-life challenges. Prior work has demonstrated the effectiveness of XR for reducing discomfort and enhancing coping mechanisms in various psychological contexts (Dhunnoo et al., 2024; Omisore et al., 2024; Gaina et al., 2024).

TRUST-XR builds upon these foundations by incorporating adaptive scenario modulation, therapist telepresence, and user-centred task design, thereby offering a flexible and inclusive therapeutic framework.

References (Selection)

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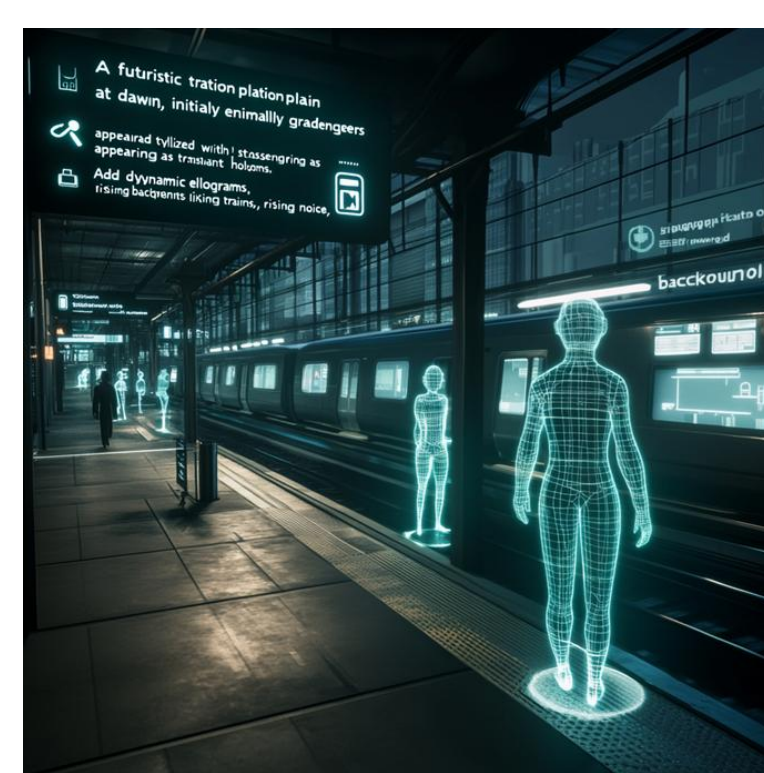
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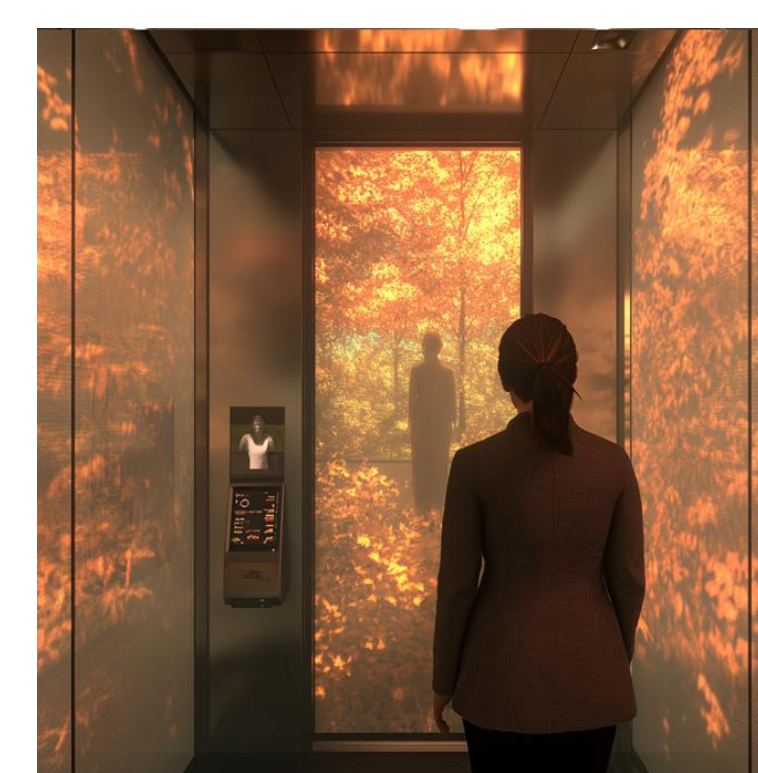
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System features

- *Scenario adaptation*: Adjustment of environmental parameters (e.g., lighting, spatial density, auditory stimuli) in real-time, in response to user input or therapist intervention.
- *Therapist telepresence*: Therapists are visually and audibly present in the XR space via avatars or holograms, offering verbal guidance and live adjustments.
- *Task-based interaction*: Users engage with context-specific objectives that support gradual engagement and emotional progression.
- *Minimal physical setup*: Designed to function in confined physical spaces without requiring large-scale movement.
- *Spectator interface*: An external live view enables observers or therapists to monitor and discuss user experience..



(a)



(b)



(c)

Fig. 1: Each module supports gradual user engagement through immersive, personalized tasks: (a) *dynamic social spaces* simulates increasing social density in a public setting; (b) *spatial confinement progression* introduces adjustable spatial constraints in a virtual elevator environment; and (c) *elevated perspective exploration* allows controlled exposure to vertical settings via a semi-transparent skybridge.

Scenario modules

The core scenario modules (Fig. 1) are:

- *Dynamic social spaces*: Users complete tasks (e.g., purchasing a virtual ticket) in a simulated public transit setting, with incremental increases in crowd size and ambient stimuli. Scenario complexity adapts to user behaviour and comfort levels.
- *Spatial confinement progression*: Users enter an elevator-like XR environment, where spatial constraints are introduced progressively. Environmental changes are coupled with calming prompts and minigames, guided by the therapist's input.
- *Elevated perspective exploration*: A semi-transparent skybridge scenario provides users with gradually intensifying exposure to height. Visual and structural elements are dynamically adjusted, and users engage in confidence-building activities.

Impact and relevance

TRUST-XR demonstrates the application of adaptive, human-centred XR in therapeutic contexts, contributing to novel paradigms for emotional support and behavioural transformation. It aligns with the EuroXR community's goals by:

- showcasing real-time, therapist-guided XR therapy in compact deployment conditions.
- highlighting personalization and inclusivity in immersive intervention design.
- offering a scalable model with implications for mental health, education, and accessibility.

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For more information about the project, please visit <https://xrproject.eu/trust>

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TRUST-XR project
website