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SynchronizAR: Instant Synchronization for Spontaneous and Spatial Collaborations in Augmented Reality

SynchronizAR enables the spatial coordination of multiple augmented reality devices for collaborative environments by accurately registering them without needing to share maps or use external tracking.

Emerging mobile technologies allow augmented reality (AR) applications to become pervasive. Especially, the advancing simultaneous localizing and mapping (SLAM) technique extends the interaction volume into a highly spatial space by providing highly accurate tracking. Involving multiple users in a collaborative co-located environment requires synchronizing spatial frames across different users, which is a challenge that has led to several approaches that don't solve the issue.

Researchers at Purdue University have developed SynchronizAR, an approach to spatially register multiple simultaneous localizing and mapping (SLAM) devices together without sharing maps or involving external tracking infrastructures. Based on the registration of the AR devices, SynchronizAR supports to create a spontaneous collaborative AR environment to spatially coordinate users' interactions. This work is applicable to a wide range of use cases leveraging the spatial registration of multiple SLAM devices.

Advantages:

-Accurate spatial interactions

-High translational and rotational accuracy

-Supports more than 3 users

Potential Applications:

-Spontaneous collaboration

-Interactive AR game construction

-Spatial aware screen sharing

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Artificial Intelligence & Machine Learning/3D Optical Imaging & Industrial Metrology
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Authors
Ke Huo
Karthik Ramani

Further information
Matt Halladay
MRHalladay@prf.org

Erinn Frank
EEFrank@prf.org

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-Human-robot interactions

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