

AR Journey Into Movies

Liwa Tang, Zhihao Cai,
Junyi Huang, Yiwei Pang
Supervisor: Xudong Jiang



Pipeline

Current Process

Localization:

- Database (SfM construction)
- Algorithm:
 - Record uploaded frames info in Session world
 - Localize corresponding poses in SfM world
 - SfM \leftrightarrow Session transformation: s , R , t .
 - Convert movie camera pose to Session world

Visualization (Unity):

- AR scene setup (ARFoundation)
- Real-time localization visualization
- Guidance and navigation arrow
- Frustum visualization for movie camera

Next steps

integration

Navigation
Real Movie Scene
User test

Present Results

Localization:

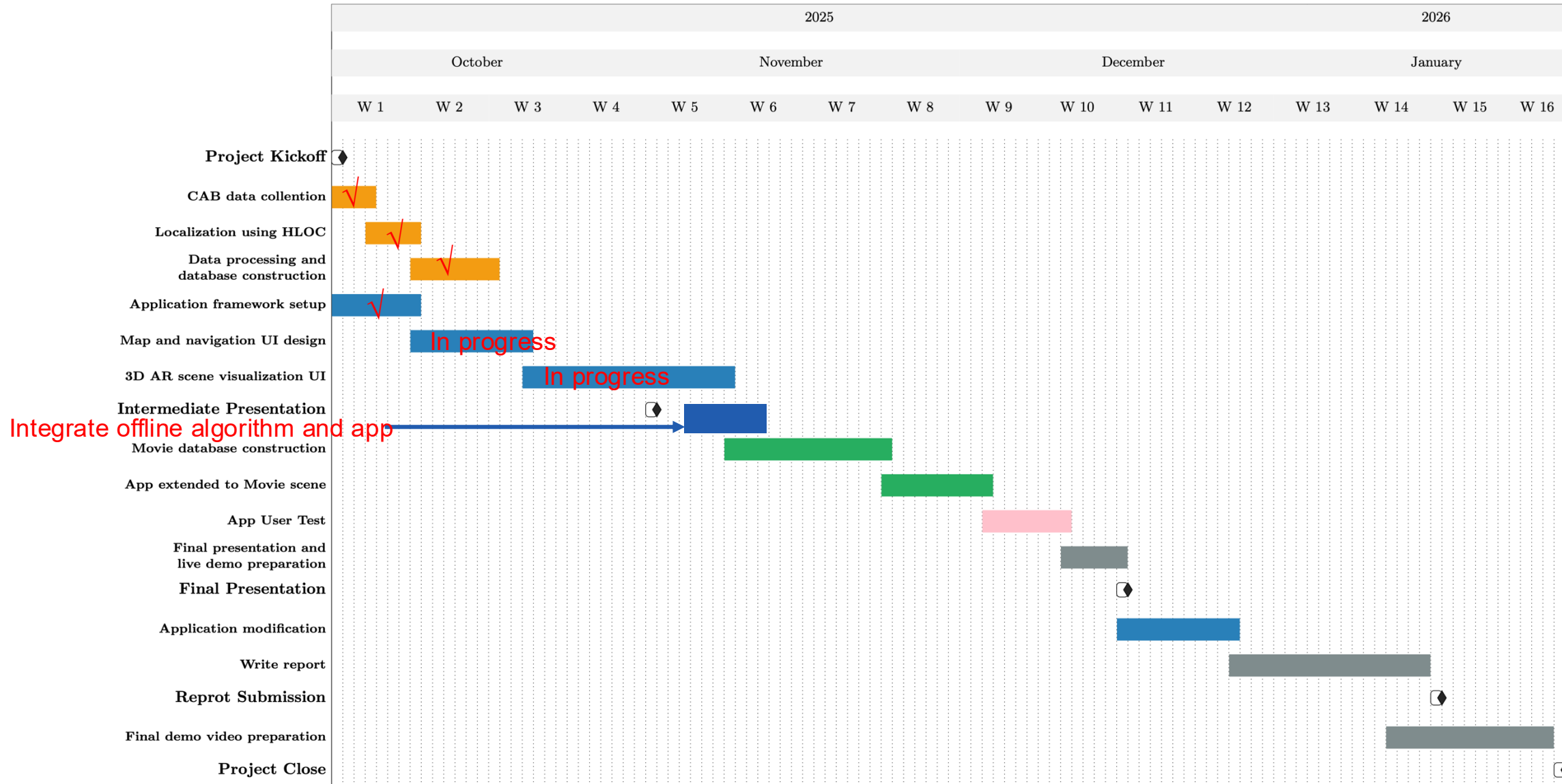
- Load: prepared SfM and a mocked movie frame.
- Import: frames captured from camera view in the app and corresponding poses in the AR session.
- Localize the poses of frames and perform coordinate transformation.
- Output: mocked movie frame's poses in the AR session.

Visualization (Unity):

- Initialize AR scene with **ARFoundation** (AR Session, XR Origin, Camera).
- Localizing target with a 3D frustum model.
- Provide interface showing distance, hints and status.
- Enable navigation visualization (arrow + text guidance).



Timeline



Q & A