

Project Objectives

- **Develop an Integrated XR Framework.** We aim to design and implement a state-of-the-art framework that seamlessly integrates 3D perception and reconstruction. This will serve as the foundation for creating immersive and interactive XR experiences, bridging the gap between the real and virtual worlds.
- **Modular and Scalable Design.** We aim to structure the framework in a modular fashion, breaking it down into distinct components such as input processing, 3D perception, 3D reconstruction, XR integration, etc. This design will ensure that each component can be developed, tested, and optimized independently, allowing for easy upgrades and enabling the framework's adaptability across a range of XR applications.
- **Research Key 3D Perception and Reconstruction Topics.** We aim to explore deeper into the key areas of 3D perception and reconstruction, especially for researching and developing cutting-edge algorithms related to 3D registration, completion, recognition, reconstruction, etc. A special emphasis will be placed on data-efficient learning algorithms to address the challenges of acquiring specialized, labeled data for diverse XR scenarios. Moreover, we will focus on the exploration and development of interpretable 3D neural networks. By understanding their decision-making processes, we aim to develop adaptable and reliable deep models for XR applications, providing insights into wider operations and enhancing user trust.
- **Comprehensive Testing and Feedback.** We will conduct extensive tests on user behaviors across a variety of XR platforms and applications. By systematically evaluating the framework's performance and comprehensively collecting user feedback, we aim to identify areas for improvement and make the framework satisfy its intended audience.
- **Deliver a User-Friendly Open-Source Product.** We aim to release the developed framework as an open-source, user-friendly, well-documented, and easily accessible product. This will promote widespread adoption and collaboration within the global XR community, benefiting future innovations from both academia and industry.
- **Leverage Expertise for Project Excellence.** We will exploit the unique expertise of the Project Investigator (PI), who brings a blend of practical industry experience in XR development and in-depth academic research in 3D vision. Building on the PI's insights and preliminary experimental results, the project is expected to set new standards and benchmarks in XR immersion and interactivity.