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A Review of 3D Mapping with Robots

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Rangefinding is a game changing technology that is now enabling robots to build increasingly accurate and high-resolution 3D maps. Such maps enable robots to autonomously navigate space without collision and detect objects for dexterous manipulation. I will provide a review of basic spatial mapping for robots and its use of linear algebra and quaternions. This review will also include methods for loop closure optimization and presentation of results from robotic spatial mapping.