Dense & Direct Methods for 3D Reconstruction & Visual SLAM

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Abstract

The reconstruction of the 3D world from images is among the central challenges in computer vision. Starting in the 2000s, researchers have pioneered algorithms which can reconstruct camera motion and sparse feature-points in real-time. In my talk, I will introduce spatially dense methods for camera tracking and 3D reconstruction which do not require feature point estimation, which exploit all available input data and which recover dense or semi-dense geometry rather than sparse point clouds. Applications include 3D photography, 3D television, and autonomous vehicles.