Build your own RGB-D 3D reconstruction system
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Abstract

In this talk I will give a primer on new real-time RGB-D depth cameras, ranging from structured light through to time of flight systems. Then we'll explore exciting new applications that are possible using such cameras. The main focus of the talk will be on using these depth cameras for real-time 3D reconstruction. I'll cover the basics needed to build a real-time 3D modelling system, and will provide code examples. By the end of the talk, the hope will be that students will know enough to build their own 3D reconstruction system.

We'll then look at some of the open challenges in the field: including model scalability, real-time model correction, dynamic and deforming scenes, and semantic scene understanding.

Keywords
Surface reconstruction, real-time, GPU programming, depth cameras, camera pose estimation, depth map fusion