3D Reconstruction of Non-rigid Scenes

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Abstract

3D reconstruction from images has been a tremendous success-story of computer vision, with city-scale reconstruction now a reality. However, these successes apply almost exclusively in a static world, where the only motion is that of the camera. Even with the advent of realtime depth cameras, full 3D modelling of dynamic scenes lags behind the rigid-scene case, and for many objects of interest (e.g. animals moving in natural environments), depth sensing remains challenging. In this talk, I will discuss a range of recent work in the modelling of nonrigid real-world 3D shape from 2D images, for example building generic animal models from internet photo collections. While the state of the art depends heavily on dense point tracks from textured surfaces, I will talk about recovering shape from largely textureless objects such as dolphins, by incorporating the strong constraints given by the object's silhouette.

Keywords
3D Reconstruction, Non-rigid shapes

About the Speaker
Andrew Fitzgibbon is a principal researcher at Microsoft Research Cambridge, where he heads the computer vision group. He is best known for his work on 3D vision, having been a core contributor to the Emmy-award-winning 3D camera tracker "boujou" (www.boujou.com) and Kinect for Xbox 360, but his interests are broad, spanning computer vision, graphics, machine learning, and even a little neuroscience. He has published numerous highly-cited papers, and received many awards for his

work, including 9 "best paper" prizes, the Silver medal of the Royal Academy of Engineering, and the BCS Roger Needham award. He is a fellow of the British Computer Society, and of the International Association for Pattern Recognition. Before joining Microsoft in 2005, he was a Royal Society University Research Fellow at Oxford University, having previously studied at Edinburgh University, Heriot-Watt University, and University College, Cork.