Abstract:
3D reconstruction from two or more images is one of the most well-studied problems in computer vision. Due to the inverse nature of the problem, the reconstructed models typically suffer from various errors. In this talk, I will distinguish between two types of uncertainty that can cause these errors, namely correspondence and geometric uncertainty. The former refers to the uncertainty in determining the correct match for a given pixel while the latter refers to the uncertainty in the coordinates of the reconstructed 3D point, assuming that correct correspondences have been established. Based on this analysis, I will present an approach for depth map fusion and a solution to the next-best-view problem in target localization that benefit from explicit uncertainty modeling.

Bio:
Philippos Mordohai is an Assistant Professor of Computer Science at the Stevens Institute of Technology. Prior to that, he held postdoctoral researcher positions at the University of North Carolina and the University of Pennsylvania. He holds the Diploma in Electrical and Computer Engineering from the Aristotle University of Thessaloniki, Greece, and the MS and PhD degrees, both in Electrical Engineering, from the University of Southern California. His research interests include 3D reconstruction from images and video, range data analysis, perceptual organization and manifold learning. He serves as an Associate Editor for the Journal of Image and Vision Computing and as a reviewer for numerous international journals and conferences. He has organized several workshops and symposia and serves as Doctoral Consortium Chair at CVPR 2013.