

UNIVERSITY OF SOUTH FLORIDA

Defense of a Doctoral Dissertation

Automated Approaches to Enable Innovative Civic Applications from Citizen Generated Imagery

by

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This dissertation focuses on design, deployment and validation of computer vision technologies to enable novel citizen science applications. Specifically, our focus was on processing images from the San Francisco 311 dataset, which is now a large-scale dataset with tens of thousands of observations from the general public on aspects related to civic use. Across the globe, there are urgent efforts now to rethink governance from the ground up to tackle various challenges including rising populations, keeping them healthy, combating climate change, managing rising floods, ensuring availability of food and water, providing education, and so much more. This dissertation addresses two major problems in the 311 domains, namely detection of garbage and drug use in streets. By adapting transfer learning technologies, several state-