

Photogrammetry and Neural Networks to Detect Form Changing Slope Conditions

Christoph Mertz, The Robotics Institute, CMU

Cameras are ubiquitous and can observe infrastructure and environments at a high resolution. Recent advances in computer vision and machine learning enable a detailed analysis of these images to construct 3D models of the surrounding and find indicators of problems. We want to apply these tools to find early warnings for landslides. To this effect, we want to use cameras on transit buses that observe the road and its surroundings on a daily or even hourly basis. This data will enable us to detect cracks in the road, accumulated debris, excess water, fallen trees or other indicators of active or impending landslides. This presentation will explain the computer vision tools we are using and give an update on our progress on equipping a transit bus with the necessary software and hardware. We will also describe the landslide indicators that we believe are most promising.