

Activity Forecasting

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Abstract: In the next decade, there will be a paradigm-shift in the focus of computer vision research from image-based recognition, to methods that enable situational awareness. Situational awareness is the ability to perceive the potential of the observed world to change. My research has centered around the idea of activity forecasting, which focuses on developing computational models of visual situational awareness from observations of human activity in video. I will introduce a decision-theoretic approach for modeling human trajectories and show how it can be used to predict the future trajectories of humans in both single agent and multi agent scenarios. I will also show how it is possible to visually simulate human interactions in image space by learning similar decision-theoretic models from visual data. I will also explain how visual situational awareness can be used in an inverse way, as a synthesis engine to generate probable simulations of human activity, which can in turn be used to train robust detection models.

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