

Modelling Affordance Based Saliency Maps

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Attention is allocated based on stimulus dependent as well as task dependent factors in the environment. Such mapping of attention in space is typically modelled by studying the natural statistics of the environment such as color, contrast, orientation, etc. For the purpose of this study we look at goal directed behavior in the context of Gibson's affordances. Specifically, we include affordances such as grasp, cut, scoop, contain, pound and wrap-grasp of common household tools. So, given a particular task (e.g. grasp), a saliency map would highlight the object parts in a scene with the said affordance that would fulfill the task requirements. Alternatively, in a free viewing task, due to a lack of a specific task description, the saliency map would be represented as an average over all affordances in the scene weighted also by perceptually salient features such as brightness, contrast, etc. In this case, we hypothesize that objects that have multiple affordances would be more 'salient' compared to others. The aim of the present study is to model a saliency map given several objects with various affordances in a given scene.