Autonomous navigation presents many challenges. In contrast, biological systems navigate complex and unpredictable environments apparently effortlessly. Humans do this by actively sampling the environment by a sequence of gaze changes. I will examine the control structures that guide this sampling process in the context of driving and locomotion tasks. This has been very challenging because it depends on characterizing the underlying task structure. I will examine one purely top-down model that breaks down complex behavior into of simple component behaviors, or modules, that are executed according to their expected reward value, with gaze targets chosen in order to reduce uncertainty about the particular world state needed to execute those behaviors. The modular approach of independent component behaviors is consistent with many aspects of performance, and can generate gaze sequences and path choices similar to those observed in human driving and walking behavior. Thus the model forms a useful, although incomplete, starting point for understanding active selection of task-relevant information in active behavior.