**Activity Recognition**

CARL’s activity recognition software, called AR (ActivityRecognition) [8], provides real-time activity labeling as sensor events arrive in a stream. The problem of activity recognition is to map a sequence of sensor events, x =< e1e2...en >, onto a value from a set of predeﬁned activity labels, a ∈ A. Activity recognition can be viewed as a type of supervised machine learning problem. The sequential nature of the input data, the ambiguous partitioning of data into distinct data points, and the common overlapping of activity classes mean that additional data processing must be performed in order to accomplish the goal of recognizing activities. The Activity Recognition (AR) algorithm learns a function that maps a feature vector, X, describing a particular sensor event sequence onto an activity label, h : X → A. In this supervised machine learning problem the classes are the activity labels and the sensor events are represented by features combined into the input vector X of D dimensions. AR can use the learned function to recognize, or label, occurrences of the learned activity.

CARL系统的活动识别软件AR（活动识别）[8]可以实现当传感器事件流到达时，进行实时活动标记的功能。活动识别的问题是，映射一个传感器事件序列，x =< e1e2...en >，到一个包含在预定义活动标签集合中的值a，a ∈ A。活动识别可以看成是一种带监督的机器学习问题。输入数据的顺序特性，数据分治到不同数据点的含糊性，以及活动类的重叠意味着，需要有额外的数据处理才能达到识别活动的目的。活动识别算法，学习了将一个描述传感器事件序列的特征向量X映射到一个活动标签的函数h : X → A。在这个有监督的机器学习问题中，类别是活动标签，输入向量X是D维的传感器特征数据。AR可以利用学习到的函数来识别或标记已经学习过的活动的出现。