

SEARCH



RESOURCES

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- 17. Implement Naive Bayes C++ (...)
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Knowledge

Get learning questions answered

Student Hub

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Summary so Far

So far you have learned about the two main approaches to prediction.

1. Data-Driven Approaches

Data-driven approaches solve the prediction problem in two phases:

1. Offline training
2. Online Prediction

1.1 Offline Training

In this phase the goal is to feed some machine learning algorithm a lot of data to train. In the trajectory clustering example this involved:

1. **Define similarity** - we first need a definition of similarity that agrees with our definition.
2. **Unsupervised clustering** - at this step some machine learning algorithm clusters the data we've observed.
3. **Define Prototype Trajectories** - for each cluster identify some small number of prototype trajectories.

1.2 Online Prediction

Once the algorithm is trained we bring it onto the road. When we encounter a situation where a trained algorithm is appropriate (returning to an intersection for example) we can actually predict the trajectory of the vehicle. For the intersection example this means:

1. **Observe Partial Trajectory** - As the target vehicle drives we can think of it leaving a "partial trajectory" behind it.
2. **Compare to Prototype Trajectories** - We can compare this partial trajectory to the *parts* of the prototype trajectories. When these partial trajectories are more similar (using the same notion of similarity defined earlier) their likelihoods should increase relative to the other prototype trajectories.
3. **Generate Predictions** - For each cluster we identify the most likely prototype trajectory and broadcast each of these trajectories along with the associated probability (see the next section).