

Task 3: Predict Future Values

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Consider $x = L$ (the bottom of the storage unit). For n different fluid velocities v_k , we are given m different triplets $(t_{k_j}, v_{k_j}, T_{k_j})$, e.g. a training set of size nm .

Objective:

We are provided with a set of size l of noisy measurements of the temperature, and our task is to infer the velocity v of the fluid from these measurements.

My Approach:

I built an MLP to approximate the map $(t, v) \rightarrow T$. Then, using this model, call it *ApproxT* I took the measurements (t_i, T_i) and calculated the MSE of $\text{ApproxT}(t_i, v)$ and T_i , $i=1, \dots, l$ for each v between the minimum and maximum v -value in the training set, with small increments.

Then I repeated the process with a smaller increment size, concentrated around the minimizing v -value.