

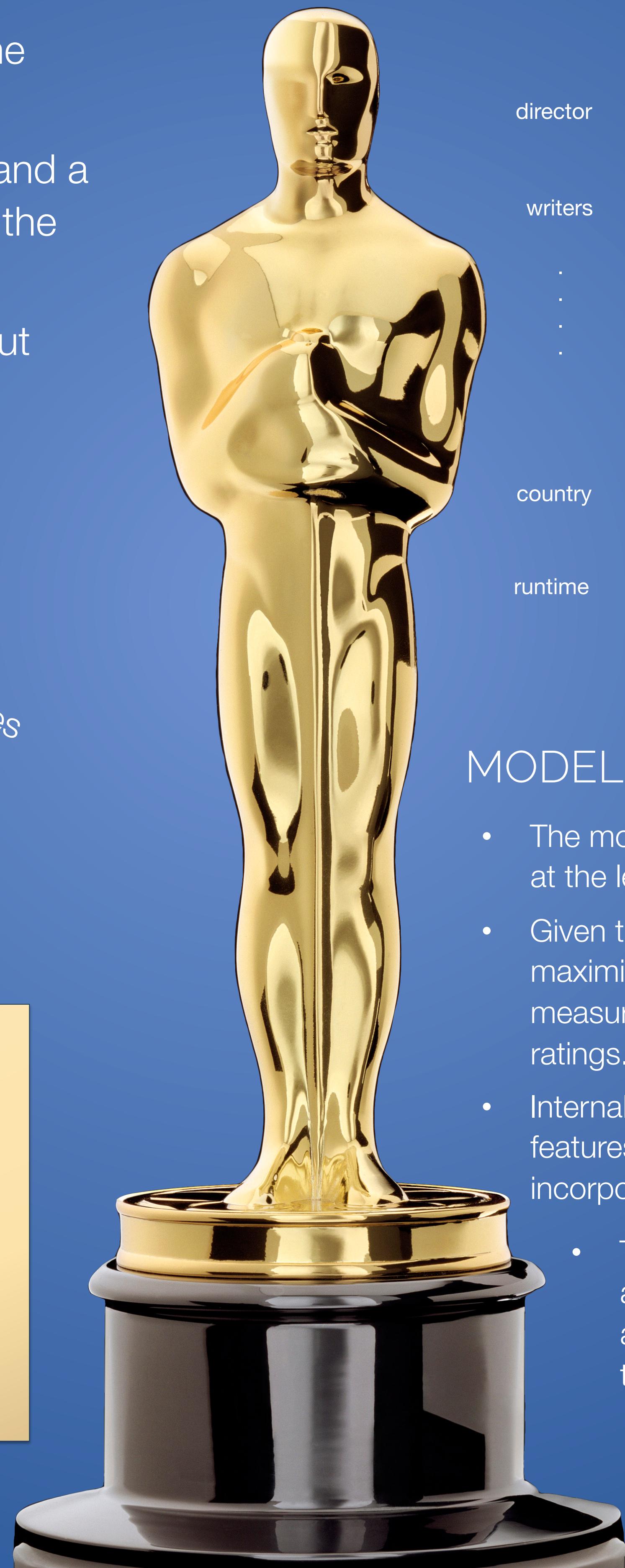
# PREDICTING THE NEXT BEST PICTURE

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## 1 INTRODUCTION

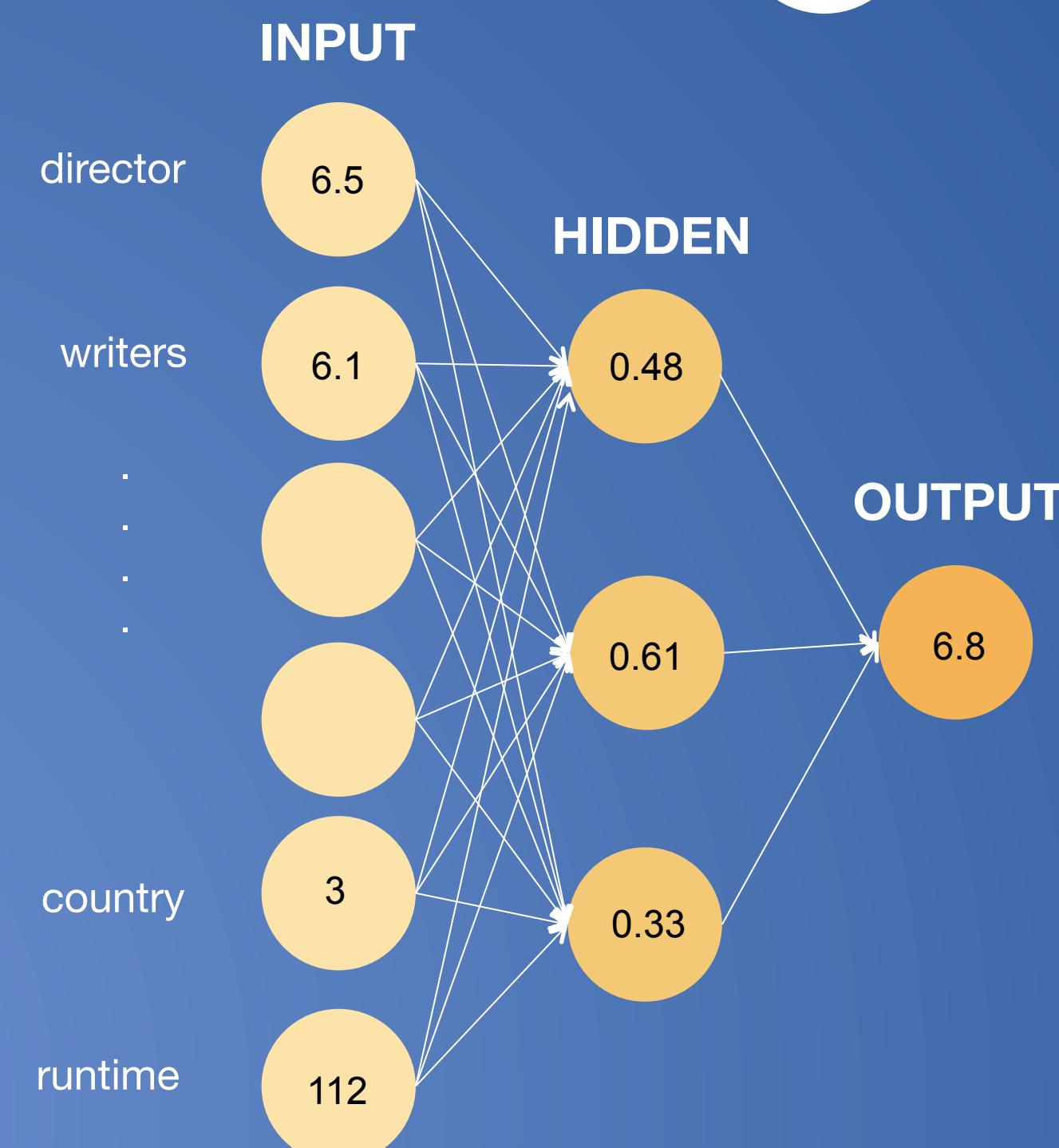
- Investigate relationship between a movie's attributes and the rating it received.
- Implement and compare the effectiveness of a **model tree** and a **neural network** that take the attributes as input and output the expected rating.
- Compare the effectiveness of these models with and without feature selection using **sequential forward search**.

## 2 PROJECT SETUP



## 3 MODEL CHOICE

### NEURAL NETWORK



### MODEL TREE

- The model tree is a tree-based model that is similar to decision trees except values at the leaves of the tree are replaced with linear models.
- Given the continuous output, we will build the tree by maximizing the expected error reduction where error is measured by the standard deviation of a data set's ratings.
- Internal nodes will represent nominal features while numerical features will be incorporated in the leaf node linear models.
- The tree will be pruned according to subset size and a minimum error threshold.

