

# Data Science in Context Presentation

Vikas Sinha  
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# Nearest Neighbor Reasoning

- Classifies a new example in the same class as the nearest feature vector in the training data
- Simple rule that nevertheless has a performance no worse than twice that of the optimum Bayes decision rule.

# Nearest Neighbor Reasoning in Legal Context

## Legal Reasoning

- Court tries to give the fairest decision, given the facts of the case and given prior decisions that courts have made in similar cases.
- E.g. Is present case more similar to previous case 1 or to previous case 2?
- Reasoning from precedent is a version of a nearest neighbor strategy for deciding new cases.

# Nearest Neighbor Reasoning in Other Contexts

- Moral Reasoning also contains examples of nearest neighbor strategy.
  - Find general principles to apply to particular cases, also test our general principles against our settled judgments about other cases.
- A doctor may reason about a new difficult case by recalling a similar case (either treated personally or documented in a journal) and its diagnosis.

# References

1. Kulkarni & Harman. An Elementary Introduction to Statistical Learning Theory. Wiley; 2011