AI Essentials:
Machine Learning Paradigms

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Supervised Categorization

- Given:
  - Given an item (e.g. an image, a document, a database entry describing an entity)
- Determine:
  - The correct category to which the item belongs from a fixed set of options.

- Training Data: A (large) set of labeled examples of precategorized items.

Two Fundamental Issues

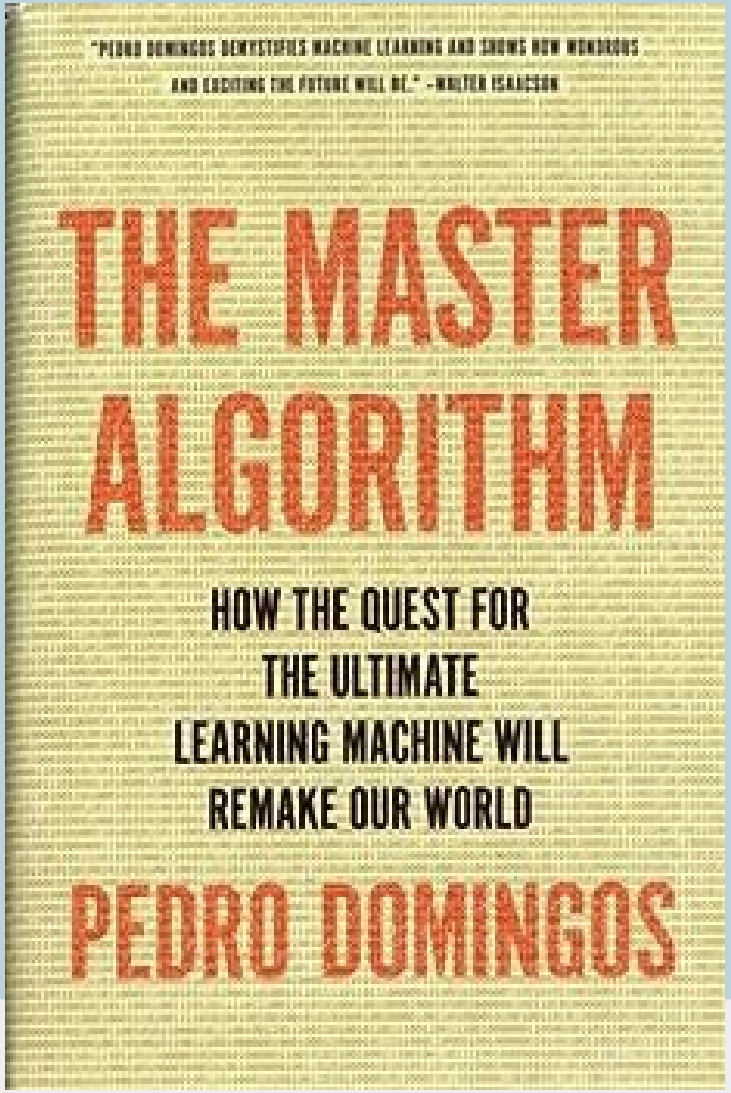
- How does the computer represent the concept (categorization function) to be learned?

- How does the computer search the space of possible concepts to find one that is consistent with (i.e. “fits”) the training data?

Five Approaches

- Symbolic / Rule-Based
- Bayesian / Probabilistic
- Connectionist / Neural-network
- Evolutionary / Genetic-algorithms
- Analogical / Instance-based

Source of "Five Tribes" Categorization



One algorithm to rule them all and in the darkness bind them…