

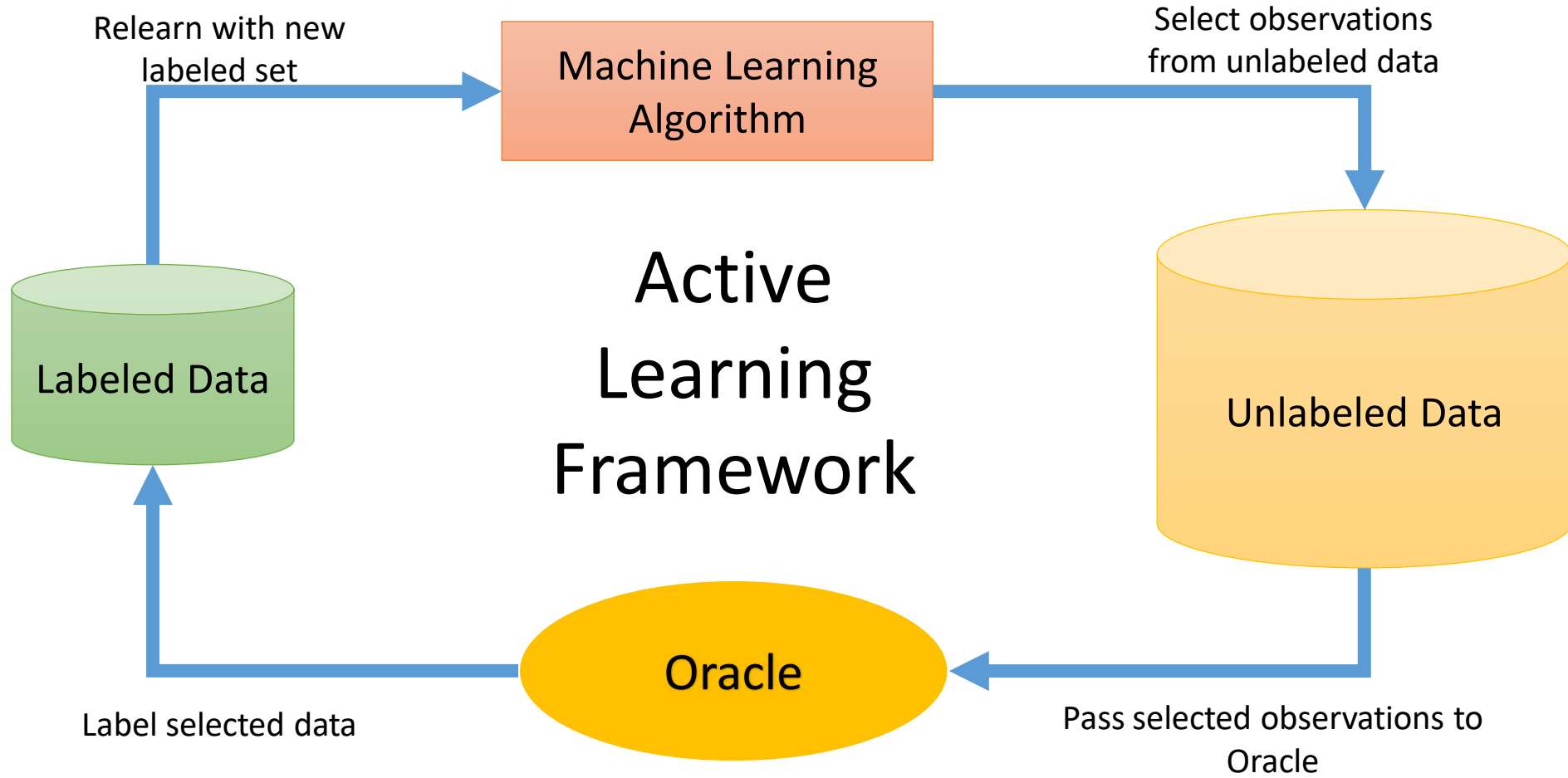
# Pareto-Optimal Active Learning with Cost

IEEE Systems, Man, and Cybernetics 2021

Dr. Stephen Adams, Research Associate Professor

Dr. Tyler Cody, Research Assistant Professor

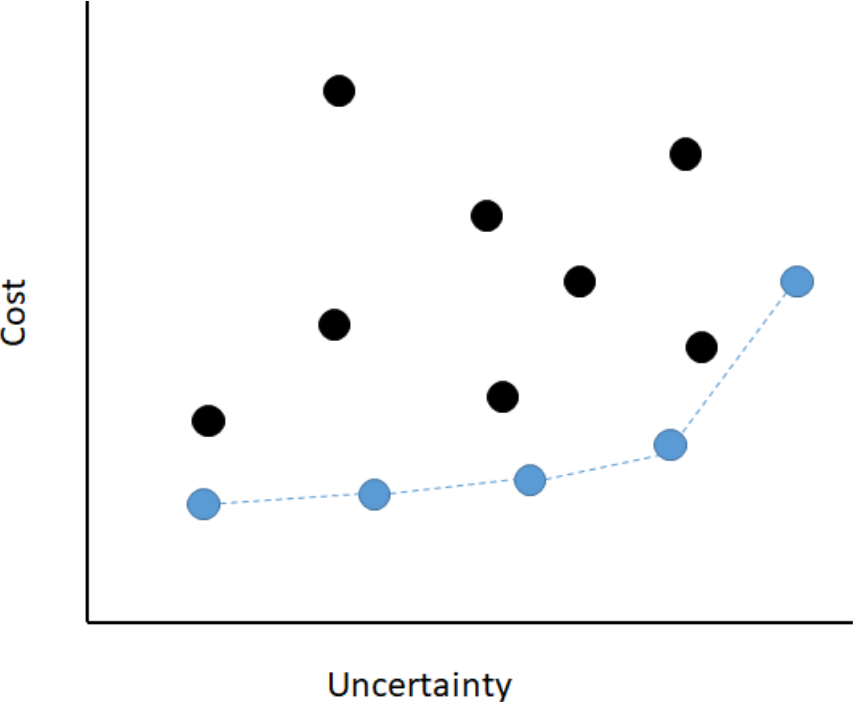
Dr. Peter A. Beling, ISL Associate Director



The general active learning framework only accounts for labeling cost indirectly and assumes a uniform cost across observations.

- This work proposes an active learning technique for non-uniform labeling cost that does not require the practitioner to specify the trade-off between cost and improvement.
- Sample observations from the Pareto frontier of classifier improvement and cost.
- Two algorithms:
  1. Assumes that the cost for each observation is known
  2. Assumes that the cost for each observation is unknown but can be represented by a random variable

## Known Cost



## Unknown Cost

