

# First Framework for a Description of Computer Substitution

- Most computerized tasks are performed with error. For example:
  - “HERB” – the CMU Household Exploring Robot Butler – has a 91% success rate in grasping objects placed on a table.
  - Krizhevsky et. al.’s neural network had a 37.5% top 1 error rate in the 2010 ImageNet LSVRC competition.

# Substitution Framework, ctd.

- Most workplace tasks have an implicit loss function that specifies the cost of doing the task incorrectly. For example:
  - When an airline boarding pass kiosk cannot reconcile a reservation, it sends the individual to see a desk agent, an action involving minimal cost.
  - When a largely autonomous vehicle cannot process obstacles in its field of view, it sends control back to the individual, an action involving potentially large costs.