Snap Assembly Roadmap – Part 2

# Current Accomplishments

* Control Strategy that:
  + Used for cantilever snaps of varying complexity
  + Yields similar patterned-signals over trials which facilitates the interpretation of noise force signals for signal interpretation and “snap sensing”.
* Snap Verification System that:
  + Encodes and interprets FT data to yield intuitive high level behaviors (HLBs)
  + HLBs can be studied (directly or probabilistically) to determine if a task was successful or not
  + Infer about the nature of each automata state in the task through low-level behavior beliefs.
  + Gradient Calibration routine that allows the RCBHT to be used with any robot-snap-part pair.

# Future Directions

* Online Implementation
  + Combining the Pivot Approach with the pRCBHT online.
* Basis Error Corrections – Snap Sensing
  + Identifying when a task will fail and reattempt the motion.
* Advanced Error Corrections – Snap Sensing
  + Effectively characterize common failure conditions for the cantilever-snap assembly.
  + Infer the details of the faulty motion and correct online to adjust/correct the motion and achieve a successful task.
* Learning
  + Implement a learning method that can identify common mistakes and learn to better avoid them over time.
* Visual Detection
  + The autonomous detection of snap features to help automate the snap assembly.
* Two Arm Snapping
  + Attempting the snap assembly by having the robot hold each mold part.
* Generalizing to Cope with Varying Snap Complexity
  + Be able to autonomously perform the snap assembly regardless of the complexity of the snap part.
* Other Snap Types
* Apply this framework to other manipulation domains.