Constraint-Obeying Path Planning (Use Case: 1, 4, 6, 7)

- Interpolaiton Modes
  - Start and End Condition Constraints
  - Dense Cartesian Plans
  - Joint Interpolated
  - Linear Cartesian
- Accuracy
  - Process Flexibility
    - Machine
    - Process Tolerances
  - Path Accuracy
  - Kinematic Constraints
    - Velocity
    - Acceleration
    - Jerk
- Path Joining
  - Motion between process paths
  - Joining two process paths to make one
- Multi Arm
  - Assembly
  - One Process - Multiple Robots
- Resample source geometry
- Time Constraints
  - Computational
  - Execution
- Smoothness
  - Must be within machine limits
- Optimal planning based on weighted constraint costs
- Task Leve Planning (higher level?)

Collision Checking (Use Case: All)

- Collision Model Accuracy
  - Trade off on accuracy and speed
  - Model Accuracy Driven By Accuracy
- Distance
- Collision Model Output
  - 1 or multi point
  - Boolean
  - Distance
  - What are the n closest points
- Dynamic End effector modeling
  - Picking up parts
  - Might have different resolutions depending on task
  - Deformable EE
- Static vs. Dynamic
- Multiple Arms
  - Self Collisions
- When?
  - Plan Time
  - Execution Time
- Human vs. Not

Dynamic/Cluttered Scene Mapping (Use Case: 2, 5, 6, 7)

Force Guided Control (Use Case: 3, 5, 6)