Guided Bone Cutting for Robot-Assisted Neurosurgery

- Implement robotically-assisted craniotomy

**What Students Will Do:**
- Implement method to define boundary contour and tolerance band
- Implement hand-over-hand guided motion along three conditions of constrained motion to simulate cutting of a craniotomy

**Deliverables:** (All deliverables shown as demonstrations)
- Minimum:
  - Follow the boundary of a convex contour defined in a plane perpendicular to the robot +z axis within a band of 5mm.
  - Allow instrument motion only along plane.
- Expected:
  - Follow the boundary of a convex contour defined on an arbitrarily defined plane within a band of 5mm.
  - Allow instrument motion only along the path and perpendicular to the plane.
- Maximum:
  - Follow the boundary of a convex contour defined on an arbitrarily defined surface within a band of 5mm.
  - Allow instrument motion only along the path and normal to the point on the path.

**Size group:** Two

**Skills:** Algorithms, Kinematics, ROS (preferred), C++

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