Building a Workflow for Cooperatively Controlled Robotic Mandibular Surgery

Mandibular Osteotomy Allows Repositioning for Functional Correction

Before

After

Before

After
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- **Goal:** Adapt an existing cooperatively controlled robot (CCR) to develop the first robot-assisted mandibular osteotomy workflow.
- **What Students Will Do:**
  - Develop 3D-printed phantoms of the mandible for testing robotic osteotomies
  - Develop algorithms to provide robot-enforced safety barriers around critical nerves that could be damaged during mandibular osteotomies
- **Deliverables:**
  - Minimum: 3D printed mandibles for surgical simulation
  - Expected: Functioning demonstration of robot-enforced safety barriers during surgery
  - Maximum: Submitted manuscript of robotic workflow
- **Group Size:** 1-2
- **Skills:** Experience in ROS, C++, and 3D printing desirable.
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