

3D Printing Airway Trainers: BME 400

Dates: 11/7/25 - 11/13/25

Client: Kristopher Schroeder, MD

Advisor: Dr. Paul Campagnola

Team:

Matt Sheridan (Communicator)

Dan Altschuler (Team Leader)

Cody Kryzer (BPAG)

Lance Johnson (BSAC)

Elleana Thom (BWIG)

Problem Statement

Airway management is an integral part of keeping a patient stable in many medical environments. While training medical practitioners with simple airway trainers has improved patient outcomes, this has not had the same effect on patients with abnormal airways. The use of 3D printing from existing patient imaging to create realistic and individualized airway manikins would assist medical professionals, allowing them to practice airway management skills on lifelike models.

Brief Status Update

Now that the team is done working on outreach the project will now turn to focus on creating our manikin. There are a few ways we can go about accomplishing this but work will be done to prep the team for fabrication after break.

Weekly Goals and Accomplishments

- Team
 - Got ready for outreach
 - Did some research on manikin connections and designing negatives for molding
- Matt Sheridan
 - Finished prepping for outreach
 - Finished negative scans
- Dan Altschuler
 - Completed outreach plans
- Cody Kryzer
 - Helped with segmenting
- Lance Johnson
 - Tested and finalized outreach activity with the team
 - Converted scans to airway
- Elle Thom
 - Prepped materials for outreach

Upcoming Goals

- Team
 - Get the scans printed
 - Do the outreach activity
- Matt Sheridan
 - Get prints of the airway and start attaching to a full manikin
- Dan Altschuler
 - Continue work on the manikin
 - Ask Matt to segment the scans
- Cody Kryzer
 - Complete research on manikins
 - Work on adding the lamp design to a manikin
- Lance Johnson
 - Prepare for the outreach activity
 - Add an esophagus to the most recent MRI airway scan and 3D print using elastic resin
 - Continue working on the manikin and building neck adjustment mechanism
- Elle Thom
 - Make the prototype
 - Research ways to scan a face and 3D print the file