

# 3D Printing Airway Trainers: BME 301

Dates: 3/14/25 - 3/20/25

Client: Kristopher Schroeder, MD

Advisor: Prof. Beth Meyerand

Team:

Matt Sheridan (Communicator)

Dan Altschuler (BWIG and BPAG)

Cody Kryzer (BSAC)

Lance Johnson (Leader)

## 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

The team continued research into segmenting softwares, slicing softwares, and 3D printing. The team also reached out again to the client about working towards getting the MRI airway scan, but it seems like there is going to be a bit of a delay. In the meantime, we will work on practicing printing with the scan from Dr. Garcia. The team will also be prepared for show and tell so that we can learn some things from the seniors. The hope is that they have some experience with segmentation.

## Weekly Goals and Accomplishments

- Team
  - Reached out to the client for the scan and made further contact
- Matt Sheridan
  - Downloaded 3D-slicer and began working with it to become familiar
- Dan Altschuler
  - Continued work into ITK-SNAP
  - Prepared for show and tell
- Cody Kryzer
  - Explore ITK-SNAP and 3D Slicer
- Lance Johnson
  - Researching 3D-slicer software
  - Prepped for show and tell

## Upcoming Goals

- Team
  - Prepare for show and tell
- Matt Sheridan
  - Brainstorm trachea connection ideas and gather information from show and tell
  - Write durability testing protocols
- Dan Altschuler
  - Write the medical resident testing protocol and start to generate a google form
  - Do show and tell to learn
- Cody Kryzer
  - Segment scans from the client so we can print them
- Lance Johnson
  - Print STL file with the team
  - Write volume-testing protocol