Capstone Design
College of Engineering
UNIVERSITY OF GEORGIA

Capstone Design Project Abstract

Project Title: Printing 3D Anatomy Models to Enhance Medical Student Education

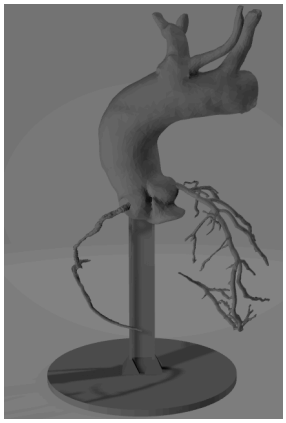
Partner/ Client: AU/UGA Medical Partnership
Team Members: Jackson Brooks, Alexis Forton, Ava Frank, Christoper Hudson, Jessica Lopez, Jarod O'Meara
Project Supervisor: Dr. Cheryl Gomillion
Instructor: Dr. Cheryl Gomillion

This University of Georgia bioengineering capstone project addresses critical challenges in medical education by designing and producing 3D-printed anatomical models to enhance hands-on learning for medical students. Traditional education tools, such as cadavers, textbooks, and simulations, often fail to provide a comprehensive understanding of anatomical structures or lack the ability to represent rare pathologies essential for effective clinical training. These limitations, along with others, impede students' ability to be prepared for real-world medical practice, creating a need for accurate, cost-effective alternatives.

To address this need, this capstone team focused on developing practical, anatomically precise models that are durable, affordable, and easy to reproduce. Guided by feedback from faculty and students at the UGA/AU Medical Partnership, the team prioritized the creation of a modular coronary artery model and a biliary tree model. These designs, based on open-source medical data, were refined through multiple prototyping stages using Computer Assisted Design (CAD) software and advanced 3D printing techniques. Their modular design ensures durability for repeated handling, straightforward reproducibility, and clear anatomical demonstration.

Additionally, a public folder was created to ensure simple access for future use. The folder contains a detailed workflow document that outlines the process of 3D model development to facilitate the reproduction of the existing models, as well as customization of future models. This resource ensures the long-term sustainability of this project by providing the clients with the tools needed to continually adapt to evolving educational demands.

This project is a significant step toward addressing the challenges of modern medical education by providing innovative, customizable 3D-printed anatomical models. Through the development of the requested models, the capstone team demonstrates the possibility of creating cost-effective teaching aids tailored to the specific and unique needs of medical students and educators. By bridging the gaps in accessibility and anatomical precision, this project will ensure that the future healthcare providers are well equipped to perform to their highest ability, ultimately improving overall patient care and outcomes.



All content should be limited to 1 page. Text should be 11pt Times New Roman font. Images and figures can be included.

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