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Optimal Segmentation and Meshing Techniques for 3D Printing Medical Devices

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The advent of 3D printing technologies allows for increased rapid prototyping and for the first time in healthcare easily developed hardware to fit customized patient needs. Allegheny General Hospital and Carnegie Mellon University identified the need for 3D printed surgical models which were affordable and effective to be developed for surgical usage.

Existing techniques for such models are expensive, environmentally unfriendly, and limited in their material properties. Through collaboration with these two institutions and Aparo Health, a regional startup, a new approach has been developed using advanced segmentation and meshing techniques to resolve CT data.

This presentation will thus discuss the mechanical significance of the materials used for 3D printing, and the fidelity in generating 3D printed objects for mechanical modelling. While demonstrating Aparo Health's approach from segmentation of CT scans to the creation of 3D physical models during the presentation.