

Faculty of Engineering

Summer Research Program 2021-2022

Project Title: Finite Element Analysis of Cardiac Stent Expansion

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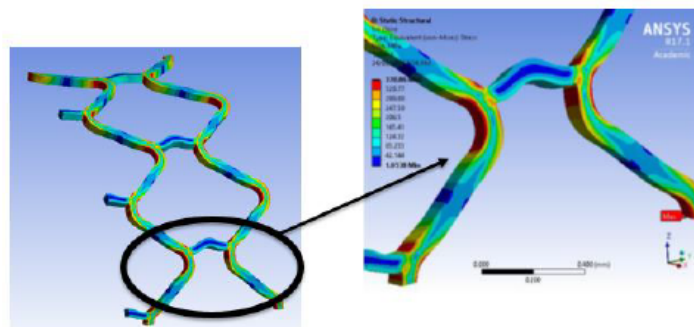
<https://www.monash.edu/engineering/laurencemeagher>

Objective

The main objective is to optimize a new cardiac stent geometry using finite element analysis.

Project Details

The project is designed to assist in the design and prototyping of a new cardiac stent. A new material for degradable cardiac stents has been identified and the optimal geometry to suit the new material and application is required. The project will consist of identifying and creating in CAD possible new stent geometries, as well as adjusting current stent geometries. These geometries will then be assessed in FEA software (Abaqus or Ansys). A model will be created where the stent is expanded by a balloon, to mimic clinical practice. This model will comprise of multiple analysis steps to mimic as closely as possible the stent expansion procedure conducted during surgery. The stress profile of the expanded stent will then be analysed and used to iteratively adjust and optimize the geometry.



Prerequisites

- Good CAD skills
- FEA experience with Abaqus or Ansys

Additional Information

Applicants will be required to attend an interview.