

## NAFEMS UK Regional Conference 2018 - Abstract Submission **Submission**

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<b>Please identify the event for which your submitting?</b>	NAFEMS UK Conference 2018
<b>Will you be the presenting author?</b>	Yes
<b>Presentation Title</b>	Creating Simulation Ready Animal and Human Body Models from 3D Medical Image Data for Computational Modeling
<b>Relevant Themes / Keywords</b>	

**Abstract (plain text)**

Simulation in medical applications is a growing field, applying the power of traditional engineering methods such as electromagnetics (EM), finite element (FE), and computational fluid dynamics (CFD) to a wide range of biomedical problems. In order to achieve realistic results there is a need for realistic geometries and a great potential resource to generate these is 3D medical scan data (CT, MRI etc.). However, there are significant challenges in creating high fidelity, simulation ready models, particularly where populations of models are required. These include, availability of good quality imaging data, time consuming segmentation and generation of clean CAD or meshed models suitable for simulation.

Here we will present solutions we have worked on with industrial and academic partners, illustrating fast and efficient approach to generating image based simulation ready models for EM analysis in commercially available software. We will show the workflow and results for subject specific animal and human models from medical scan data, as well as from a virtual population dataset based on the XCAT (Segars WP et al. Med Phys. (37)4902-4915. 2010) and Visible Korean data sets (Park JS et al. Clin Anat.(19)3 216-224). All examples use Simpleware (Synopsys, Mountain View, USA) to create anatomically realistic, complex multi-part models, offering new insight and detail for researchers and clinicians.

**abstract id**

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