

In-Silico Modelling of Endovascular Aneurysm Repair

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Engineering challenge

Endovascular Aneurysm Repair (EVAR) involves the deployment of a Stent-Graft in a diseased aorta after the detection of an aneurysm. During EVAR operation planning, medical professionals rely on CT scans and their own expertise to size and fit an appropriate SG to the patient. Mismatch of SGs can result in blood leaking in the delicate aneurysm, which calls for patients needing to get frequent post-operation CT scans.

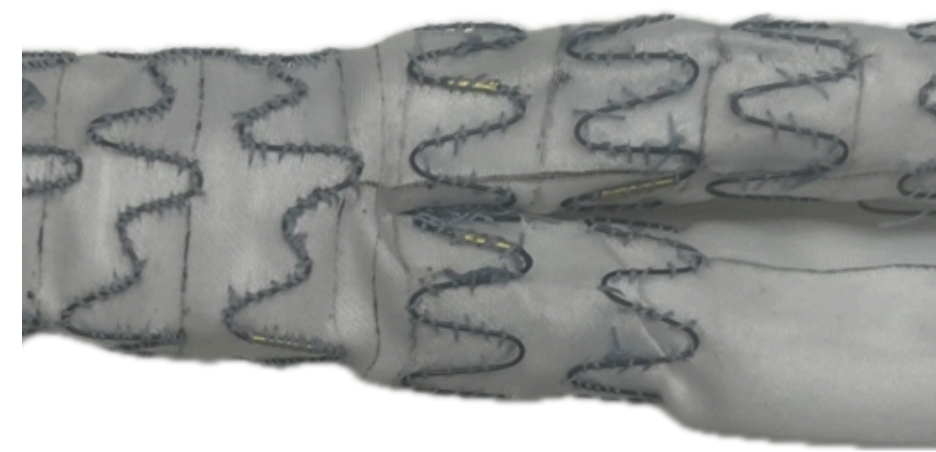
Aim

Predict EVAR SG deployment to suit specific patients through a software tool (PEAR-Tool) for clinicians.

Validation



Novel automated FEA simulation



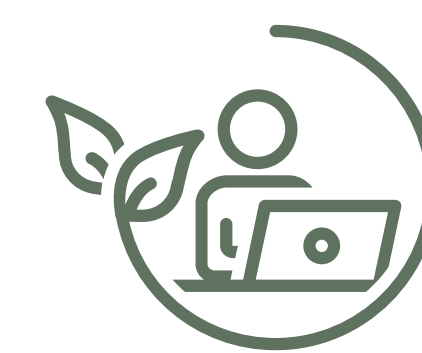
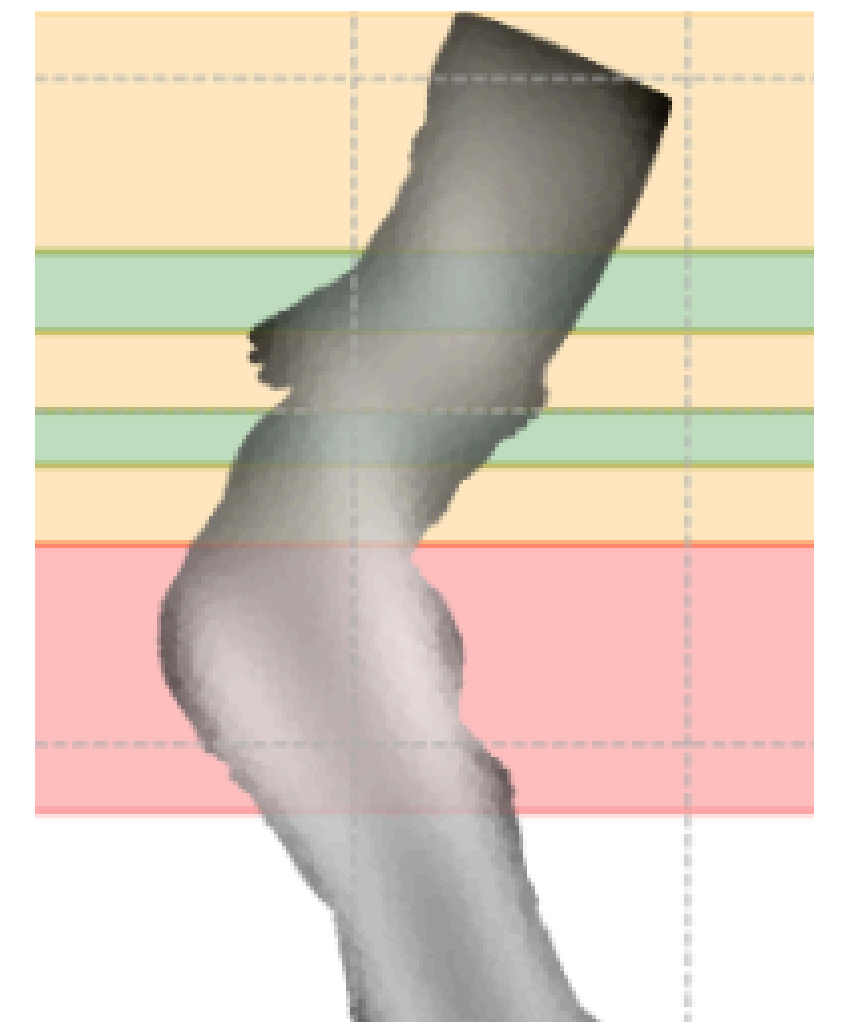
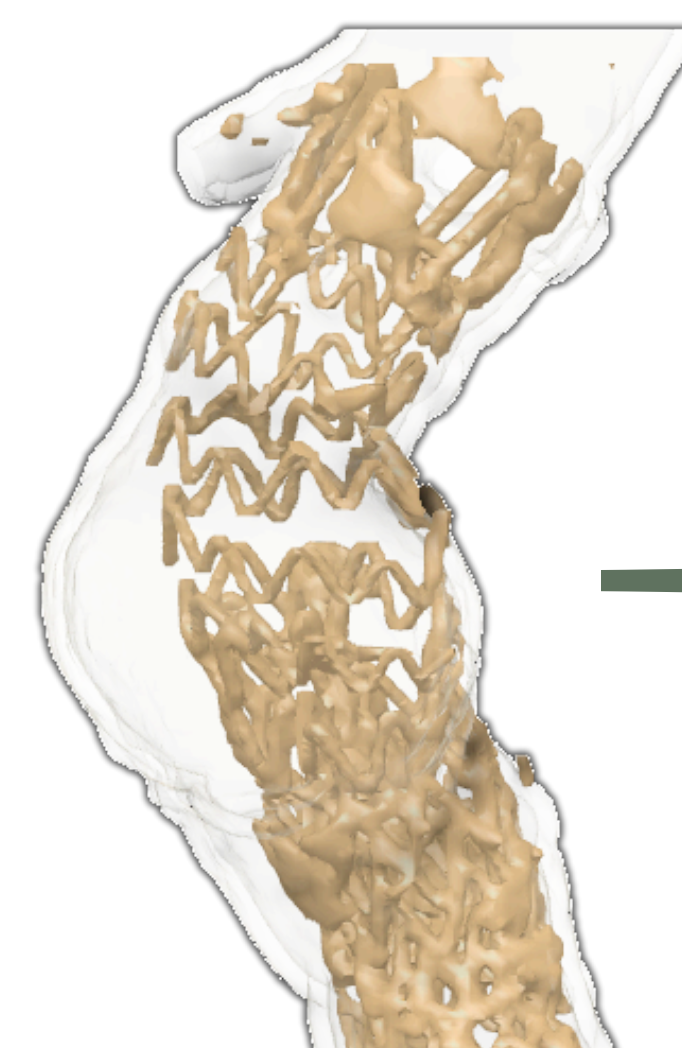
Validated through aorta phantoms and replica devices

PEAR - Tool

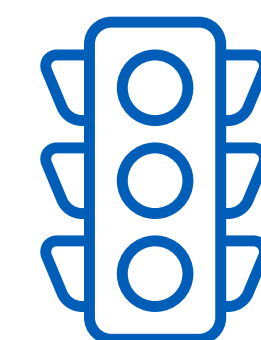
Upload Patient CT Scan

Run Simulation

View Results



User-friendly software interface

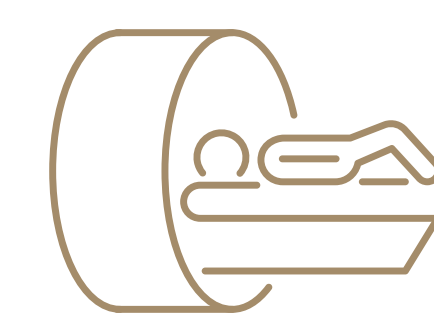


Traffic light system coding for deployment position

PEAR - Tool Advantages



Faster EVAR operation planning



Reduced follow-up CT scans

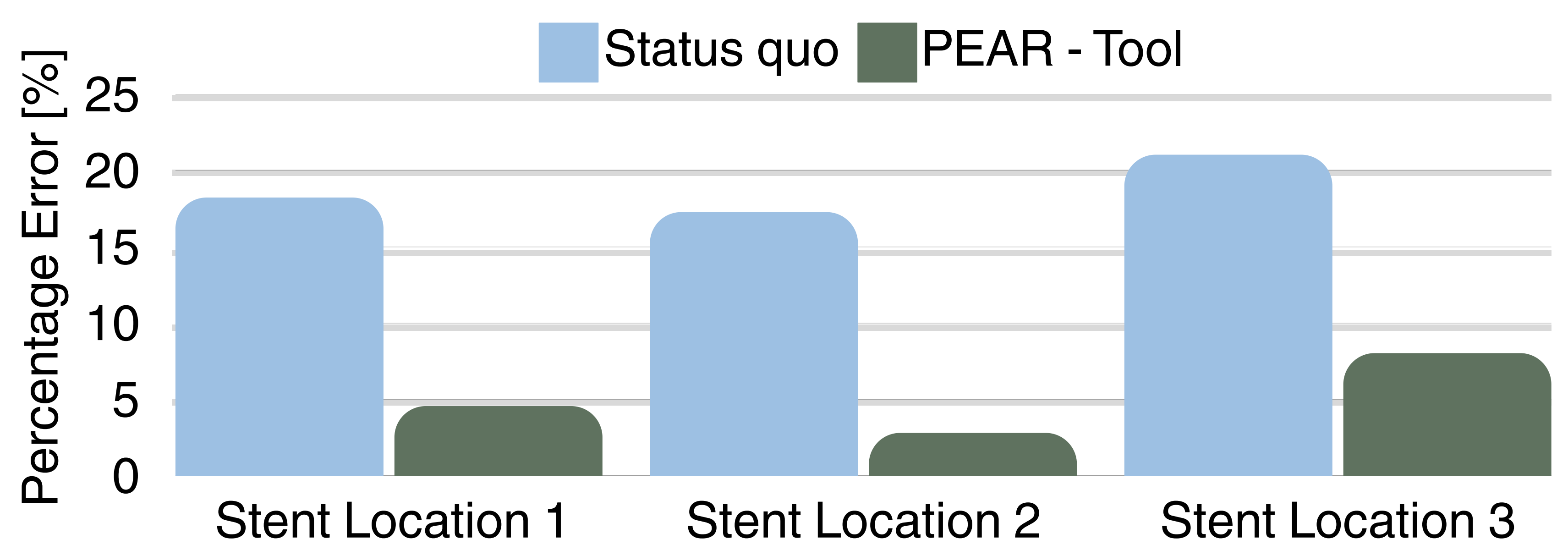


Optimised deployment location



5.1% average geometrical mismatch

PEAR - Tool VS Status Quo Predictions Error of Deployed Stent-Graft



Try our demo:

