Detroit Engineered Products (DEP) is an Engineering Solutions and Product Development company. Since its inception in 1998 in Troy, Michigan, USA, DEP is now a global company with footprints in Europe, China, Korea, Japan and India. DEP uses the accelerated and transformed product development process, accomplished by utilizing our proprietary platform, DEP MeshWorks, which rapidly reduces the development time of products for all segments.

Rapid time to market of new products across several industry sectors such as automotive, defense, aerospace, energy, oil & gas, consumer products and heavy equipment is a unique value proposition delivered to clients via DEP's world class engineers and the DEP MeshWorks platform.

DEP

Smarter solutions. Realized.

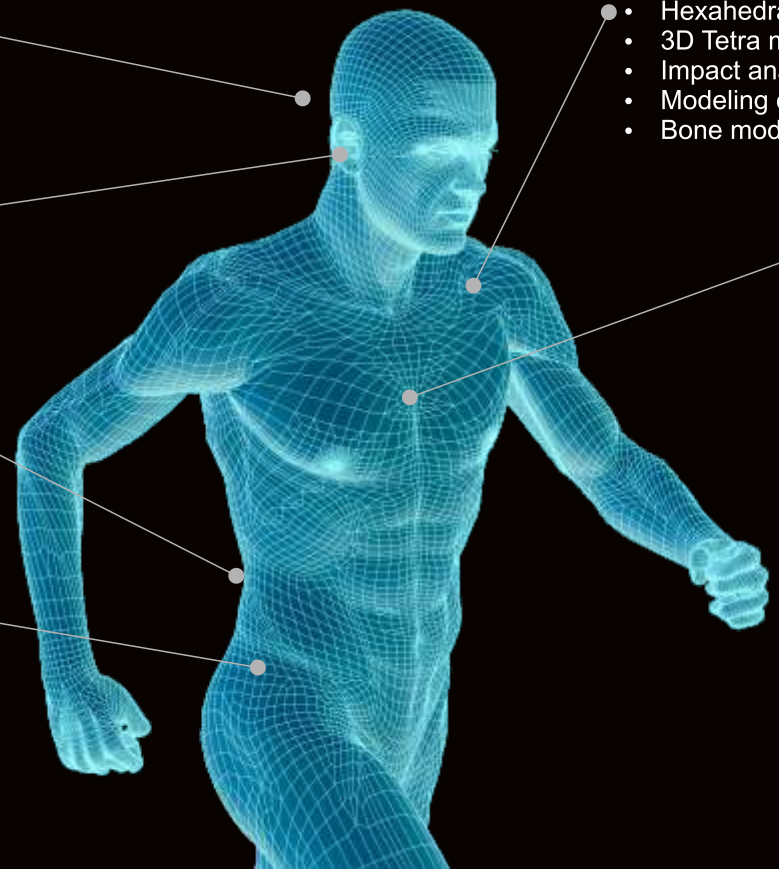
BIO-MEDICAL SOLUTIONS

HUMAN BODY MODELING
- Morphing and scaling a standard percentile Human Body Models (HBM) to non standard percentiles or other standard percentile HBMs

EAR MODELING
- Hearing research and ear modeling

SPINE
- Spine compression analysis

IMPLANTS
- Hip, knee and dental implants
- Analysis and optimization
- Customized automatic hex meshing
- Regulatory standards compliance during design and development



BONES AND INTERNAL ORGANS
- Hexahedral Mesh creation
- 3D Tetra mesh model of the skull
- Impact analysis
- Modeling of soft and hard tissue
- Bone modeling

STENT
- Design evaluation for structural behavior
- Parametrization
- Performance evaluation
- Optimize performance like radial recoil, fore shortening and tractability
- Regulatory standards compliance during design and development

Powered by DEP MeshWorks

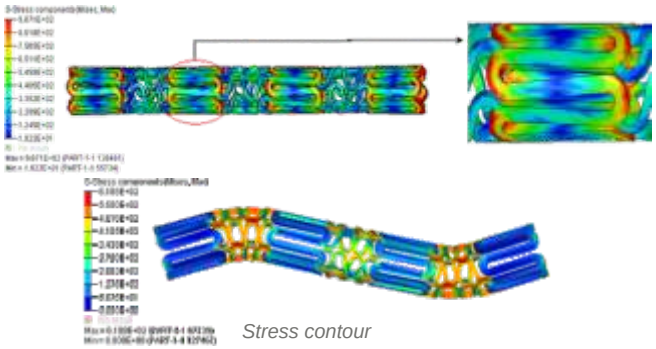
50% increase in the radial strength of a coronary stent

The Client:
A leading manufacturer and exporter of cardio-vascular products.

The Challenge:
Evaluate a balloon expandable cobalt chromium coronary stent implant in accordance with regulatory standards, considering scenarios during the production of the stent and implanting of the stent in the body.

The Solution:
Using latest techniques and methods in DEP MeshWorks, DEP was successfully able to develop 3D Hex Mesh finite element model from 2D line data to simulate realistic stent deployment for balloon expandable stents. The Stent Rolling tool in MeshWorks quickly rolled the 2D line data of stent profile into a 3D Hex Mesh model. Hex mesh Quality improvement tool was used to smooth the elements.

The DEP Edge:
- Implementing design recommendations, the client was able to achieve approximately 50% increase in the radial strength of the stent, without affecting other critical parameters of the design.
- Reduced cost of product development by about 40% & time by about 50%.
- Access to in-house tools and proprietary DEP MeshWorks software, allowed for rapid generation of multiple designs based on client's requirements.
- Reduced cost due to benchmarked/validated CAE derived design process for the client.



Stress contour

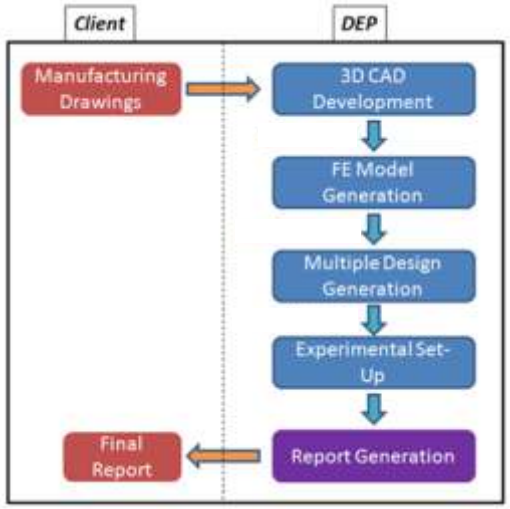
Fatigue evaluation for femoral stems of two total hip replacement (THR) implants

The Client:
A pioneer in the manufacturing and distribution of superlative orthopedic implants.

The Challenge:
Generate 3D CAD models for implants based of manufacturing drawings, as well as the fatigue evaluation of the implants to ensure that the implant is able to withstand the load for sufficient duration.

The Solution:
DEP's in-house design team, converted the manufacturing drawings into 3D CAD models using CAD software. DEP was also able to generate multiple designs of the implants for different head-neck offset based on the client's requirements. Finite element models of the implants were created using the CAD Data by MeshWorks, and analyzed. ASTM F1612-95 was recommended by DEP to evaluate the fatigue life of the implants.

The DEP Edge:
- DEP was successfully able to determine the life of the implant as per set-up.
- In addition to obtaining the fatigue life cycles, DEP was able to convert the life cycle into approximate number of years based on research literature.
- Reduction in design time compared to traditional method of device design.
- Reduced cost due to CAE derived design process for the client.
- Comparative tool for the client, to compare results with other competitive products.



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