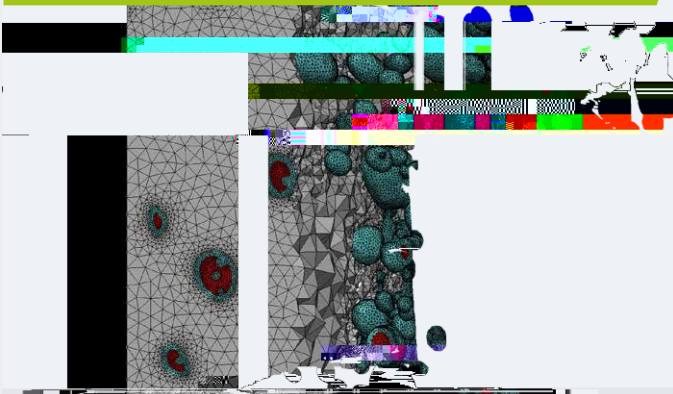




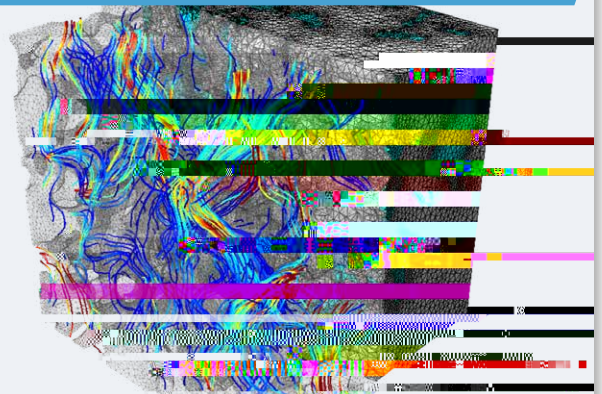
# Applications in Materials & Manufacturing

## Complex Material Modeling



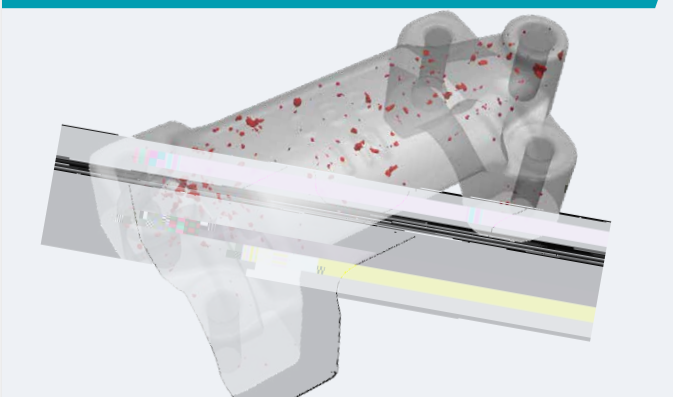
### Multi-Phase Material Meshes

## Digital Rock Physics



### Characterizing Porous Media

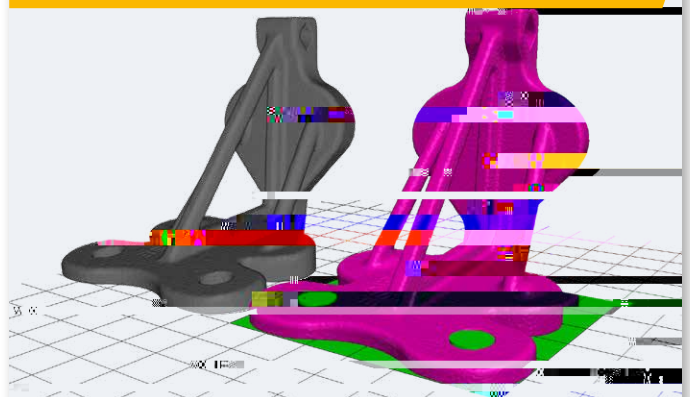
## Non-Destructive Evaluation



### Visualize and Quantify Defects

- Use automated and semi-automated segmentation tools to model manufacturing defects
- Compare image and CAD data and inspect defects using automated wall thickness or deviation tools
- Characterize features/defects/pores using Simpleware's extensive statistical framework and reports

## Reverse Engineering



### High Value Part Models from Images

# From Image Processing to Model Generation

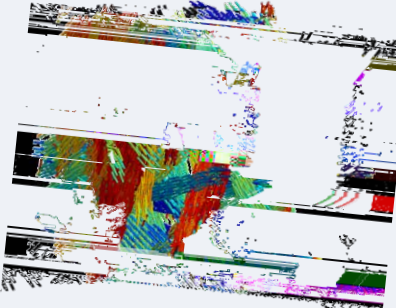


## Import & Registration

- CT / Micro-CT / Nano-CT
- FIB-SEM
- 3D EBSD
- Synthetic data (e.g. DREAM.3D)

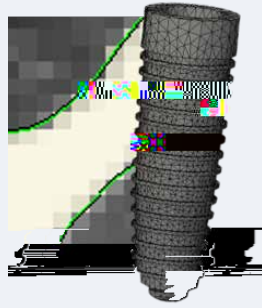
-

# From Image Processing to Model Generation



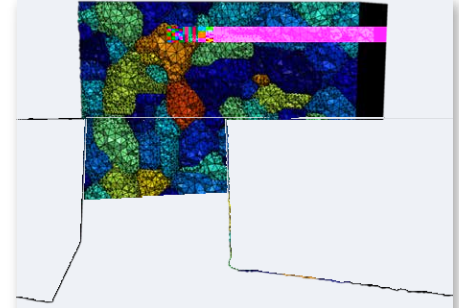
## Measurements & Statistics

- Quick measurements/statistics
- Measure volumes, surface areas, orientations, distributions
- Wall thickness assessment
- Shape fitting and analysis
- Deviation analysis
- Fibre, pore and particle analysis
  
- Generate templates, test reports...
- Quantify phases, grains, fractures, pores, particles...
- Centerline fitting, editing and analysis within dedicated tools
- Assess statistics globally or in local regions of interest
- Export raw or processed statistical data in a range of formats



## Surface Models

- High quality meshes (no post-processing/fixing)
- Volume and topology preserving smoothing
- Feature-based decimation
- Advanced options to control mesh properties
- Conforming multi-part surfaces
- Range of surface mesh exports
- Mesh quality histogram for mesh inspection
  
- Prepare models using dedicated tools including: cut, hollow, emboss text, connectors
- Analysis and inspection tools to check the model before export
- Multiple export formats designed for 3D printing



## Simpleware FE

- Conforming multi-part volume meshes
- Feature-based and user-defined mesh refinement
- Per-part meshing controls
- Define contacts, node sets and shells
- Boundary layer meshing for CFD
- Automated positioning of CFD clipping planes
- Dedicated exports for major solvers
- Optimize element qualities against multiple metrics
- Import and remesh existing volumetric meshes

## Fast Quantitative Analysis

With quick, push-button statistics and measurement options, Simpleware software offers an easy way to carry out quantitative analysis on different types of data. The extended statistical framework provides you with a broad range of pre-defined templates, as well as the flexibility and ability to input custom functions and create custom templates.

## Customize Your Workflow with Scripting

All functionality within Simpleware products is accessible from a fully documented API, with bindings available for Python and C#. Use this API to automate repeatable workflows, build wizards and integrate custom plugins. By using our macro recording functionality, you can generate code without needing any prior experience.



## Custom Model Generation and Services

Our service team can generate models for any application. We will work with you to develop a model, or series of models, that are tailored to your specific needs. This can be based on your own scan data or we can work from our library of high resolution image datasets.

## Training at All Levels

Receive step-by-step training on all areas of Simpleware software. We offer classroom training courses at local Synopsys offices or at your site, as well as customized one-to-one sessions at your place of work, or through web meetings. Our interactive courses include a combination of lectures, demos and hands-on tutorials.

## Expert Support for Your Requirements

All licenses come with full support from our team of experts. Our engineers can help you develop unique workflows, ensuring your use of the software is as efficient as possible, and your final output matches your requirements. Our support is offered via email,