

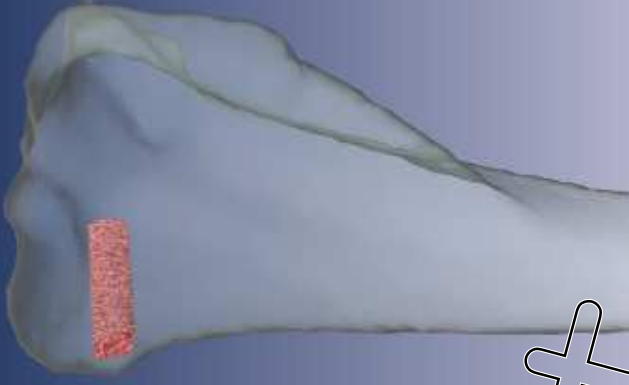
A Virtual Laboratory for Assessment of Bone Biopsies

Steffen Prohaska, Hans-Christian Hege
(Zuse Institute Berlin)

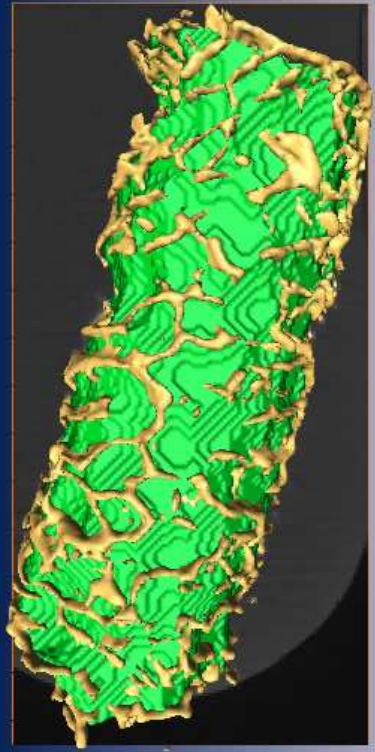
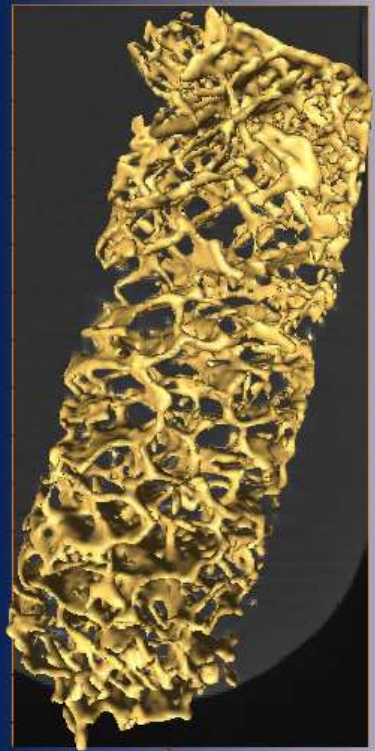
Michael Giehl, Wolfgang Gowin
(Free University Berlin)

14th IAA Humans
In Space Symposium





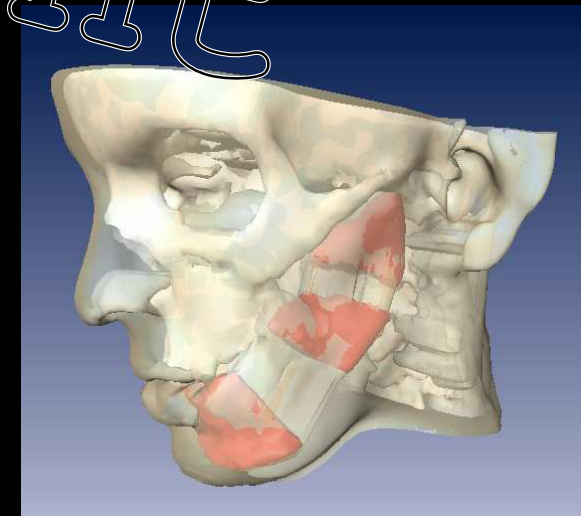
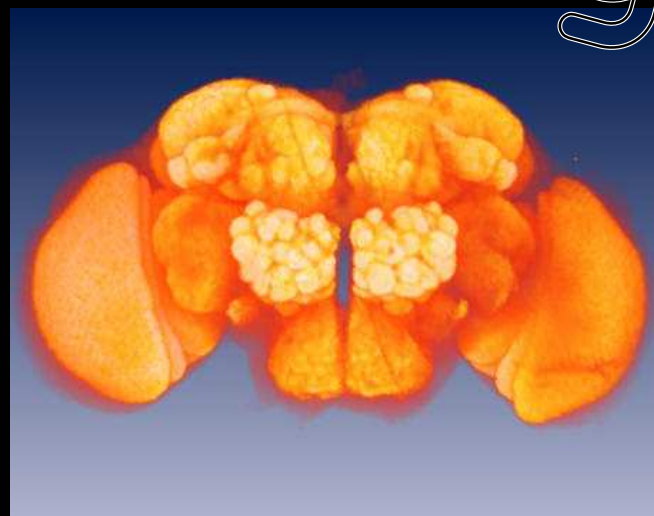
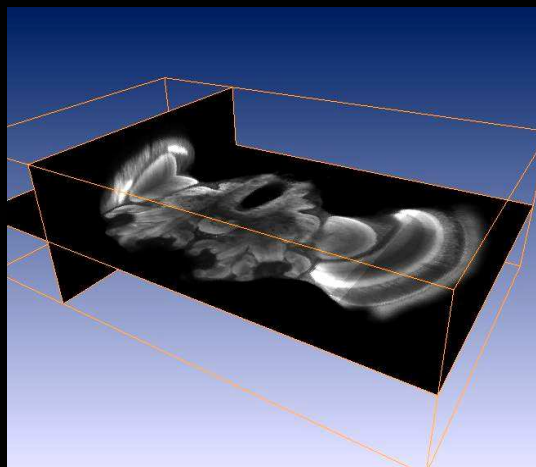
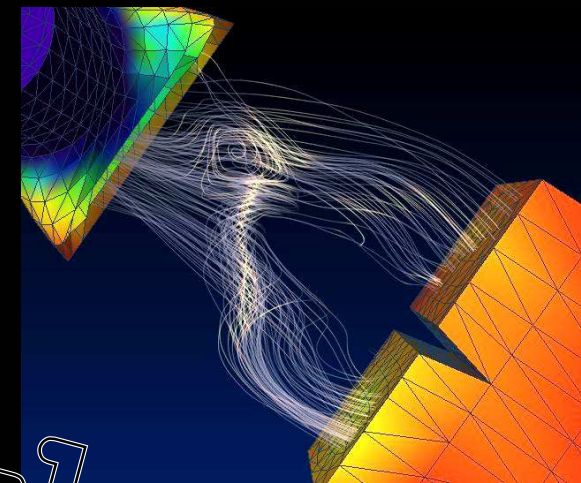
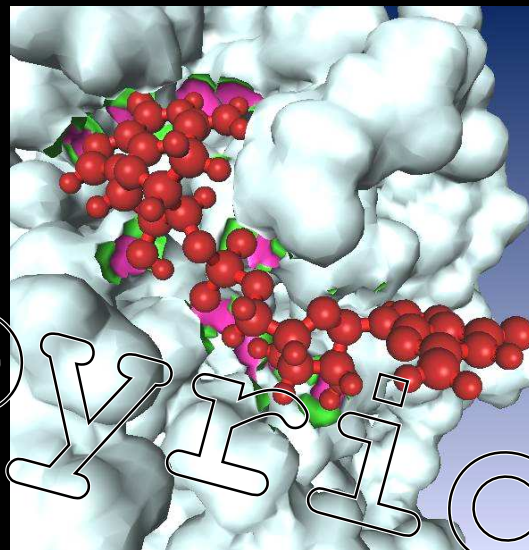
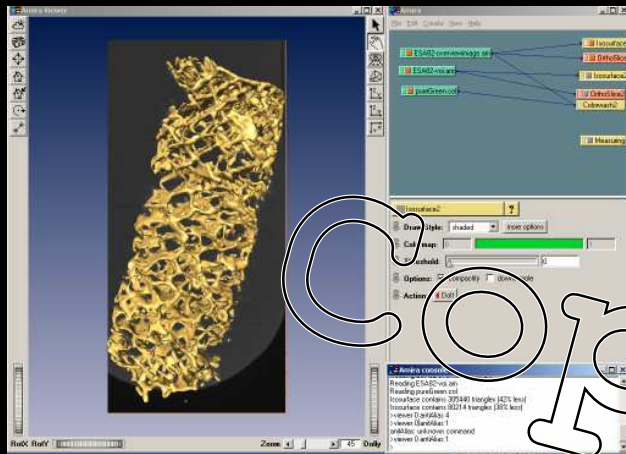
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Virtual Laboratory

- Powerful tools for common tasks
 - Data import
 - Exploring the data
 - Selecting volume of interest
- Full flexibility to do own research
 - Plug in own algorithms
 - Override default behavior

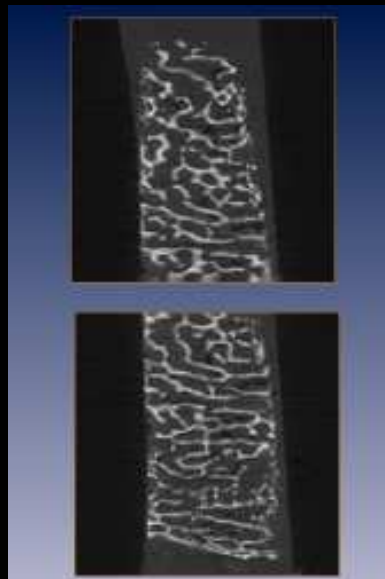
Based on general purpose visualization package
amira <http://amira.zib.de>



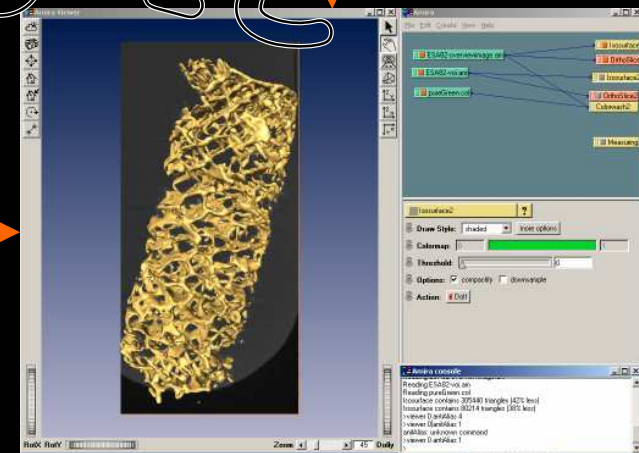
- AVS
- Analyze
- Dicom
- Leica Binary Format

- Stack of Images
 - BMP, JPEG, PNG, TIFF
- Leica 3D TIFF
- Raw binary data

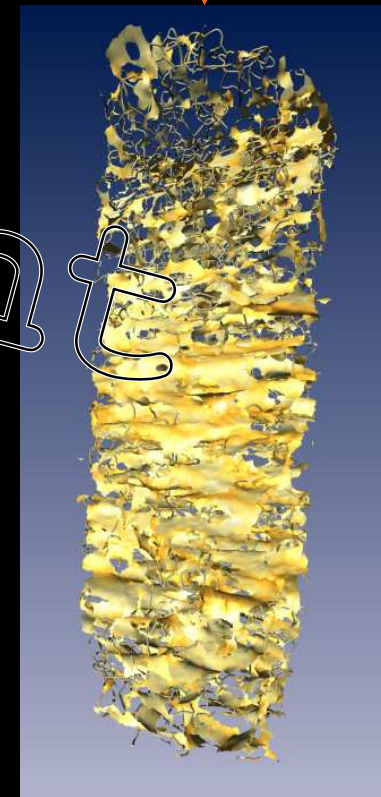
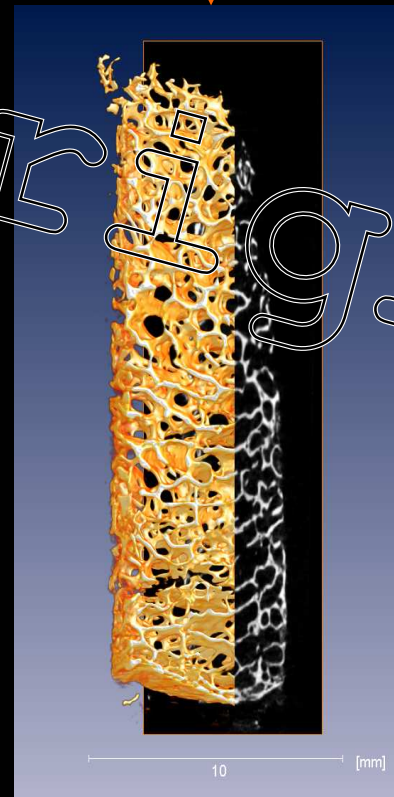
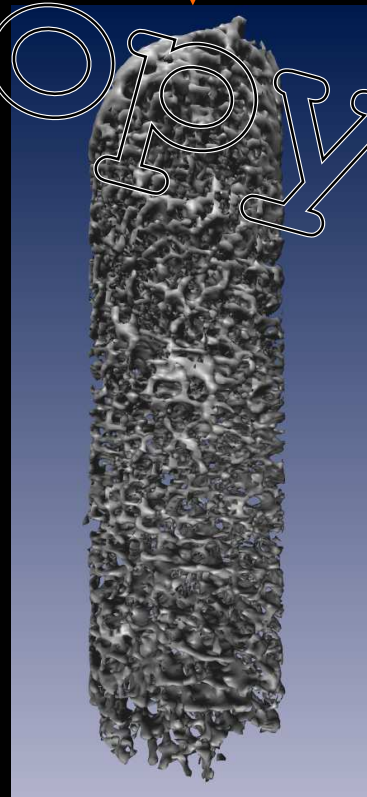
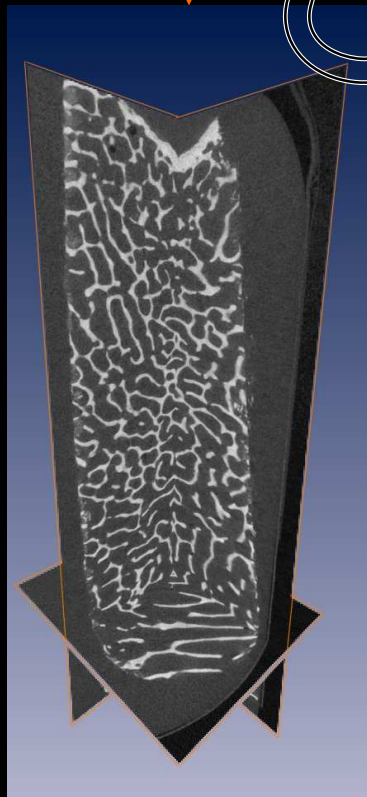
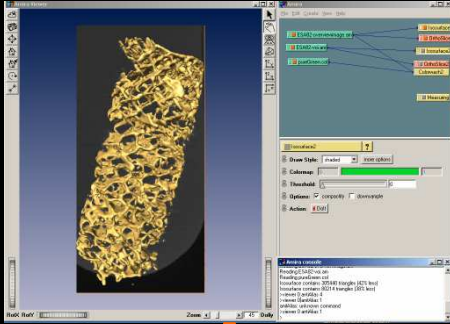
Copyright



Merge

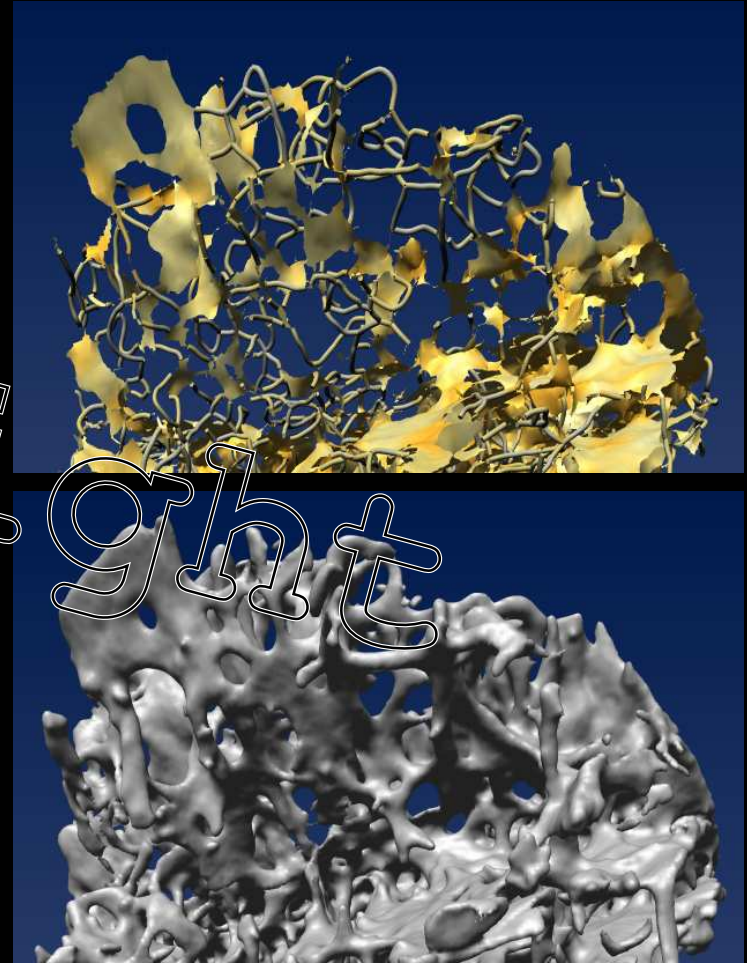
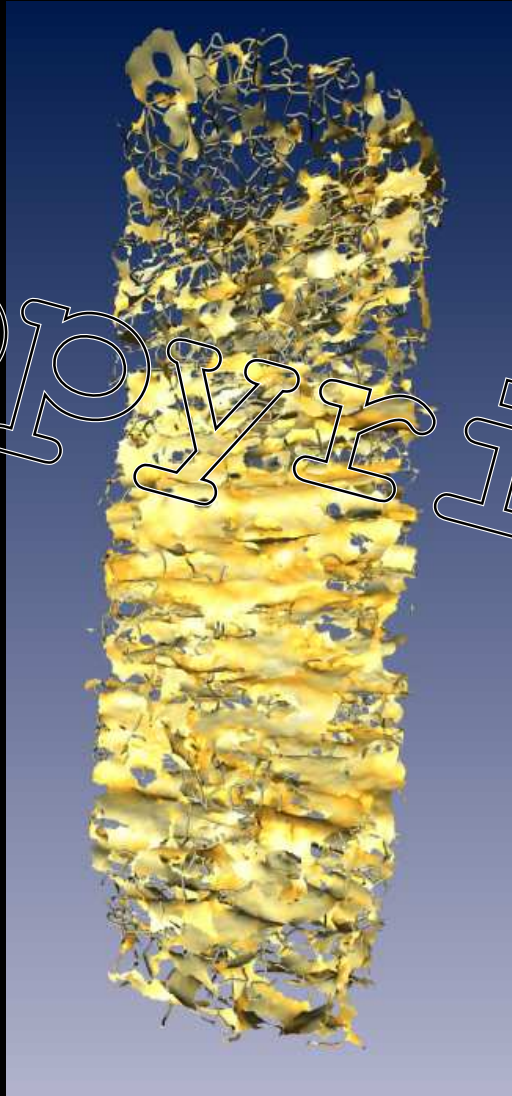


Exploring the data

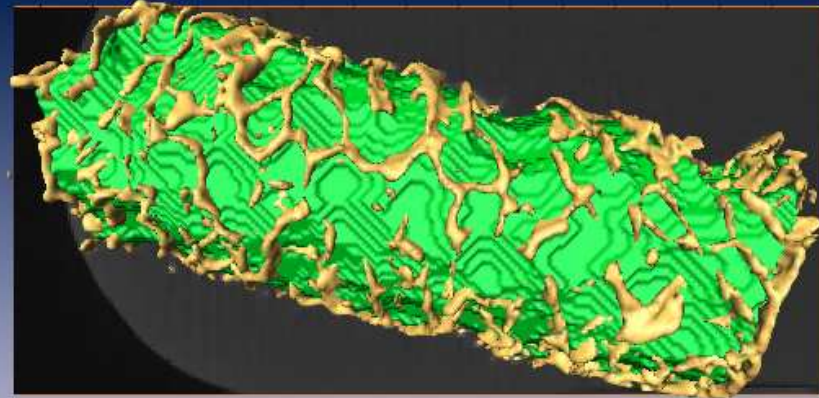
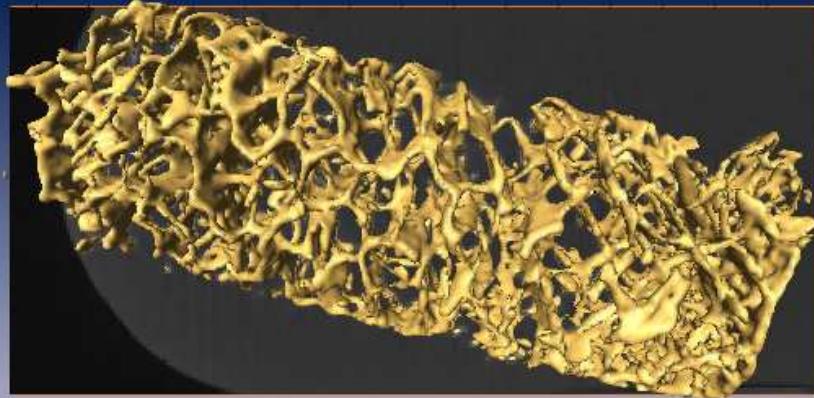
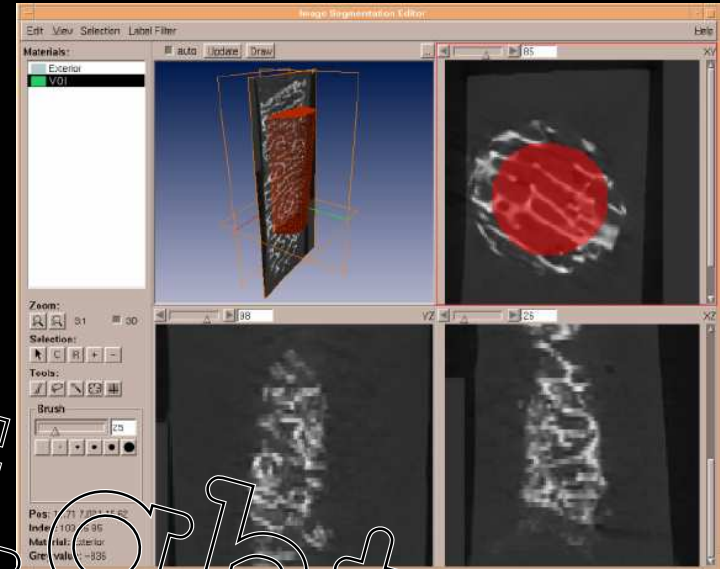
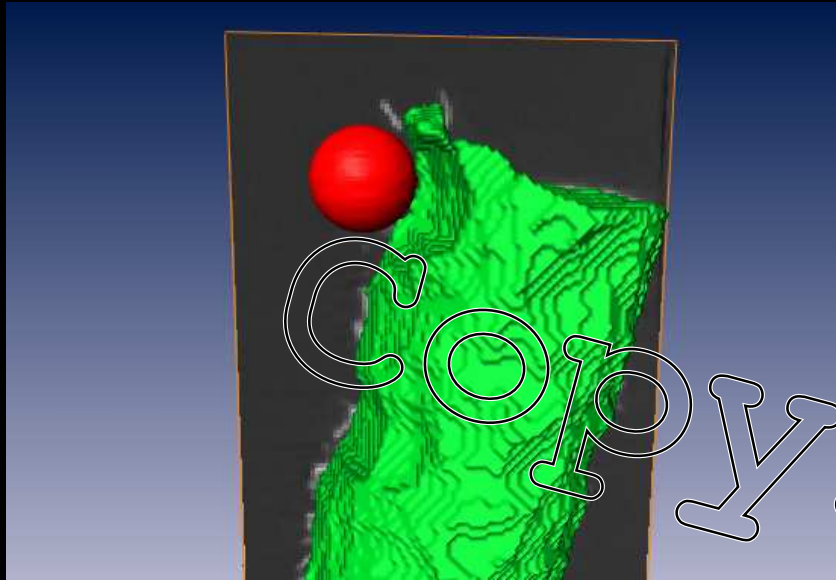


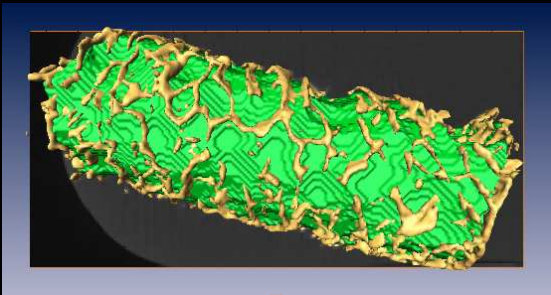
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Advanced Vis: Skeleton



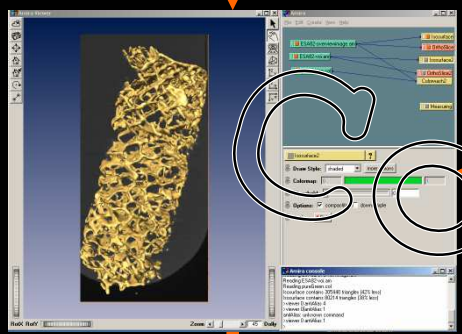
Volume of Interest





C++

```
for (int n = 0; n < size (); n++) {  
    sum += data[n];  
}
```



Tcl

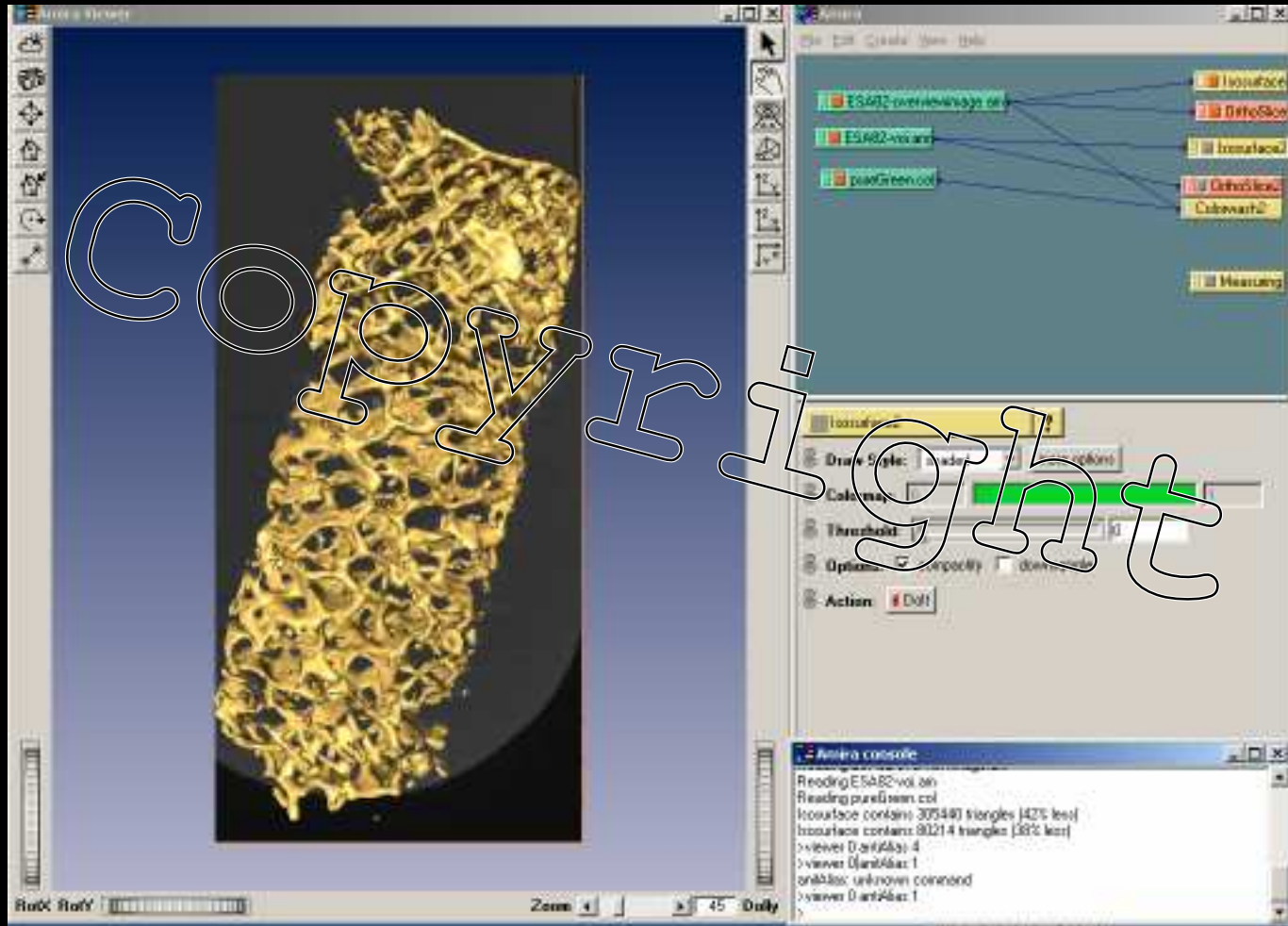
```
set input [load data.am]  
set iso [create HxIsosurface]  
$iso data connect $input
```

Copyright

- BV/TV
- ConnDensity
- Tb.Th, Tb.Sp
- DA

- User defined measures
 - 3D measures of complexity

Live Demonstration



Summary

- Virtual Laboratory
 - Default tools
 - Plug in own algorithms
 - Available on all major platforms

<http://amira.zib.de>

<http://bone3d.zib.de>

prohaska@zib.de

Support: ESA, Scanco, Siemens, Roche