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Recent interesting 3D prints (clickable links)

Chameleon head 3D print

<http://blogs.sun.ac.za/idea2product/2015/11/17/chameleon-head-printed-from-ct-scan/>

Frog skeleton

<http://blogs.sun.ac.za/idea2product/2015/11/16/frog-skeleton-printed-from-fossil-ct-scan/>

Engineer Design

<http://blogs.sun.ac.za/idea2product/2015/11/16/engineer-design/>

Prototypes

<http://blogs.sun.ac.za/idea2product/2015/11/03/prototypes-printed/>

Custom trophy

<http://blogs.sun.ac.za/idea2product/2015/10/15/custom-made-trophy/>

Head of the CT Facility

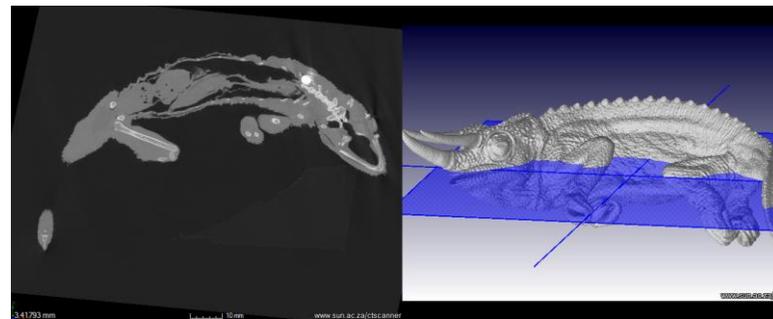
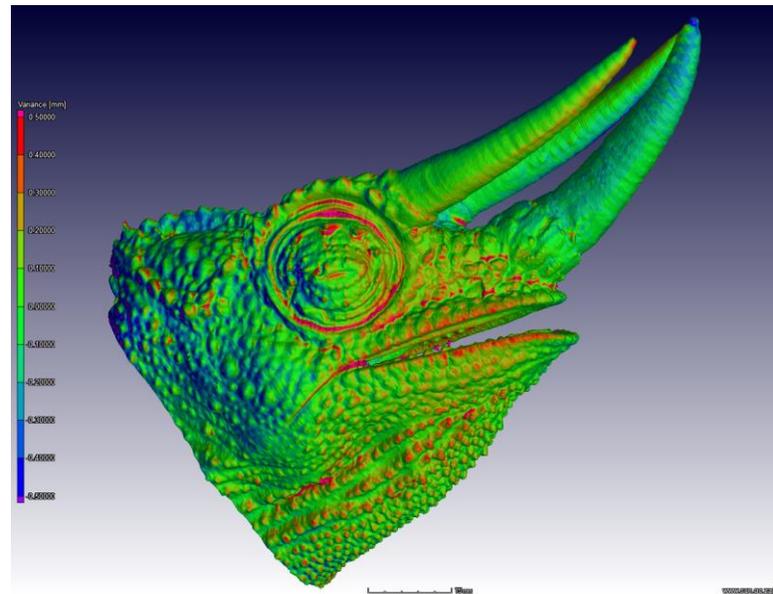
The head of the CT facility (seen to the right) is a three-horned chameleon which is an indigenous South African species. This sample was scanned and its head subsequently 3D printed in our Idea2Product Lab. The printed head was then scanned and compared with its "design" CAD file providing a colour coded variation image showing the variation is within 0.5mm on a sample 10 cm high. More details will be published in a research article but we thought this interesting enough to show some sneak previews here.

<http://blogs.sun.ac.za/ctscanner/head-of-the-ct-lab/>

<http://blogs.sun.ac.za/idea2product/2015/11/17/chameleon-head-printed-from-ct-scan/>

Welcome

Welcome to our last CT News of 2015. We would like to thank all our clients and facility users of this year who made it possible to have such a great year. We also thank those suppliers who assist us, one outstanding supplier is Volume Graphics who provide excellent support and they have included a special advert at the end of this newsletter. We will be open for scans until 16 December and open for analysis until 24 December, starting in full operation again on 11 January.



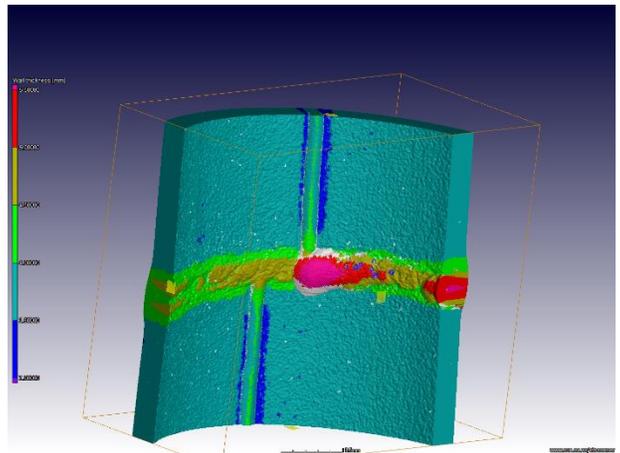
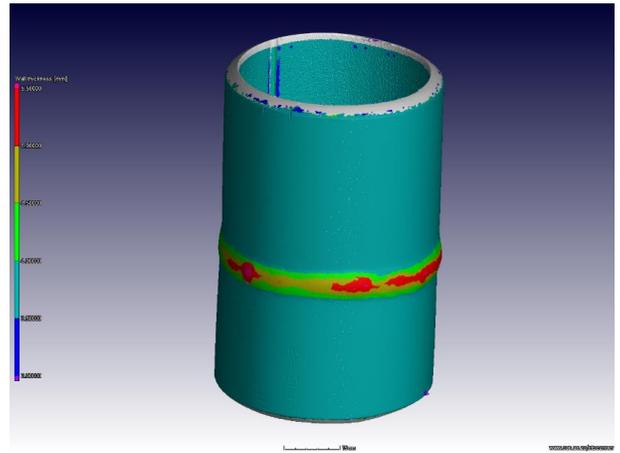
The new head of the CT Facility Stellenbosch (its like our mascot). This is a three horned chameleon indigenous to South Africa.

Nondestructive testing of welded steel cylinder

X-ray testing of metal parts is used widely to find flaws, defects, cracks, pores or even inclusions which all can have serious effects on the part's mechanical properties. CT scanning provides an "X-rays on steroids" advantage. Much more detail is visible and full 3D data can be analyzed to create a colour coded thickness analysis to visualize the variation across a weld. In this sample, the steel cylinder has a weld zone with a reasonably good thickness variation as shown in the colours varying from 4-5.5 mm and the entire colour bar is from 3 to 5.5 mm to enhance the variation viewing. No internal pores were found in this example, but some inclusions (denser material) were found on the inner surface of the weld at the thickest part (not shown here).

Thanks to the guys at NASA (that's in Bellville not Houston) for loaning the test sample.

<http://blogs.sun.ac.za/ctscanner/nondestructive-testing-of-welded-steel-cylinder/>

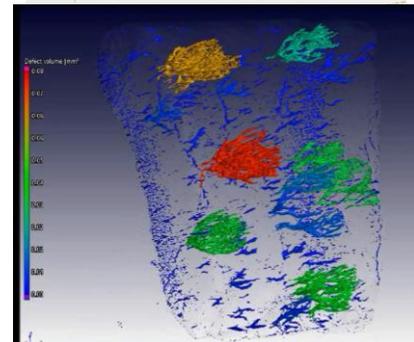
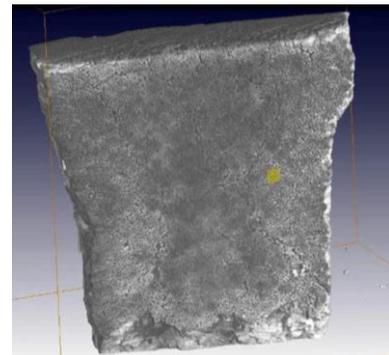


Analysis of steel weld thickness distribution in 3D. Red is thicker and blue is thinner

Ostrich egg shell pore structure

Ostrich eggs are very strong, yet ostrich chicks are able to peck their way out from the inside with little force. Investigating the inside of a fragment of ostrich shell might shed some light on this interesting natural mechanical system. These preliminary results show a fragment scanned using the nanoCT scanner and analysed for porosity size in colour coding. Tree-like pore structures are visible and are even more impressive in a 3D rotation video.

<http://blogs.sun.ac.za/ctscanner/ostrich-shell-microstructure/>



Ostrich egg shell fragment nanoCT scanned showing the interesting pore structure with colour coding on size of individual connected pore features

Training dates 2016

Monthly training will be offered FREE to post-graduate students and external clients in the form of a 3 hour session 9:00-12:00. This free training aims to provide you all the information you need to understand how this technology works, and how to best make use of it for your work, thereby you can get the most value for money. This will be on the FIRST MONDAY OF EVERY MONTH and booking is essential as numbers are limited: book by sending an email to anton2@sun.ac.za

Other training courses are listed with their costs. These will be provided on demand approximately once every 3 months. Classes are limited in size and each person has a computer for hands-on training.

Services Price list 2016

Our new prices are now available from January 2016. You will notice prices have not increased much, the major change is for special requests and for high voltage scans >160 kV using the direct tube: here additional charges are required in order to keep maintaining this system and keep providing the best quality.

For new users: a typical scan is 1 hr but can vary from 20 minutes to 6 hours, and additional costs to keep in mind are advanced analysis (by yourself or us) and hard drive/s for data.

On the up side, we offer scans now according to ASTM E1570 - 11, which is important for commercial clients. For such clients we also offer an optional summary/NDT report for R2000. We also offer free training and support for all clients in planning your work to ensure you get the best quality and do not waste time, thereby getting the best value for money.

COURSE	Dates	Cost
CT Scan introduction training	Every first Monday of the month	FREE
VGStudioMax 1 day basic user*	15 February Future dates TBD, approx. once every 3 months	R2000
VGStudioMax 2 days advanced user*	On demand	R3000
Avizo Fire 1 day basic user*	On demand	R2000
Simpleware 1 day basic user*	On demand	R2000
X-ray CT scan operator training*	On demand	R5000
3D printing introduction training	Every first Monday of the month	FREE (your print is billed at cost price and is optional)
Chemometrics introduction training	Every first Monday of the month	FREE

*certification cost extra

Service type PER HOUR	Commercial	Academic EXTERNAL	Academic INTERNAL
MicroCT scans/1 hour	R1250	R750	R450
NanoCT scans/1 hour	R1250	R750	R450
Special targets, in situ rigs, >160 kV scans, etc per hour	+R500	+R500	+R500
Unassisted analysis per 4 hrs slot	R1250	R750	R450
Assisted analysis sessions per 1 hr	R1250	R750	R450

* All costs exclude 7% admin fee and 14% VAT

** T&C apply: though prices should be stable during the year, they are subject to possible change depending on university funding model changes

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Acknowledgements

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Researchers & companies: provide us your equipment and advanced softwares to manage as part of our facility, in exchange for zero cost of usage, free maintenance and upgrades. This is a win win situation, where we use it to maintain our facility and enhance our materials analysis capabilities.

To subscribe or unsubscribe from this mailing list, please send an email with the subject line "subscribe" or "unsubscribe" to anton2@sun.ac.za

Please support our advertiser, Volume Graphics (see last page)



VOLUME GRAPHICS' HELPFUL CHRISTMAS COUNTDOWN

COMING IN DECEMBER: 24 TIPS FOR YOUR DAILY WORK

From December 1 – 24, 2015, visit www.volumegraphics.com daily to get advice on the analysis and visualization of industrial computed tomography (CT) data. We promise you: You'll learn something helpful about the software applications VGStudio MAX, VGMetrology, and myVGL every day.

GET MORE OUT OF YOUR SOFTWARE

The Volume Graphics Support Team put together 24 tips and tricks that will help you to better analyze, visualize, test, and measure your scanned objects. In videos, animations, and texts, we show you how to accomplish familiar tasks more efficiently, use features you've yet to discover, and get more out of your software.

NEVER MISS A TIP

Starting December 1, don't forget to visit www.volumegraphics.com daily!

Or follow us on LinkedIn:

www.linkedin.com/company/volume-graphics

There, too, we'll provide you with daily software tips in December!



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