



## In This Issue

- Welcome
- Example of the month: Wasp Hive
- Upcoming courses
- 3D printing lab: new location
- Recent publication highlights
- Pricelist 2016
- How to get started
- Acknowledgements
- Advertisement

## Upcoming courses

Everyone is welcome but booking is essential. You can attend all or select the one you are specifically interested from below:

### **FREE "Introduction to CT" course:**

Wednesday 20 April, 9:00-13:00, you are welcome to pop in for the 12:00-13:00 live demo only.

R1000 "Introduction to Volume Graphics" training  
Wednesday 20 April 14:00-17:00

R3000 "Advanced Volume Graphics analysis"  
training Thursday 21 April 9:00 – 17:00

## 3D printing: Idea2Product lab

Our 3D printing lab will in future be operated from the Physics Department, the name stays the same and we continue to print objects from CT scans, for more information please visit the Idea2Product Lab Stellenbosch website:

<http://blogs.sun.ac.za/idea2product/contact/>

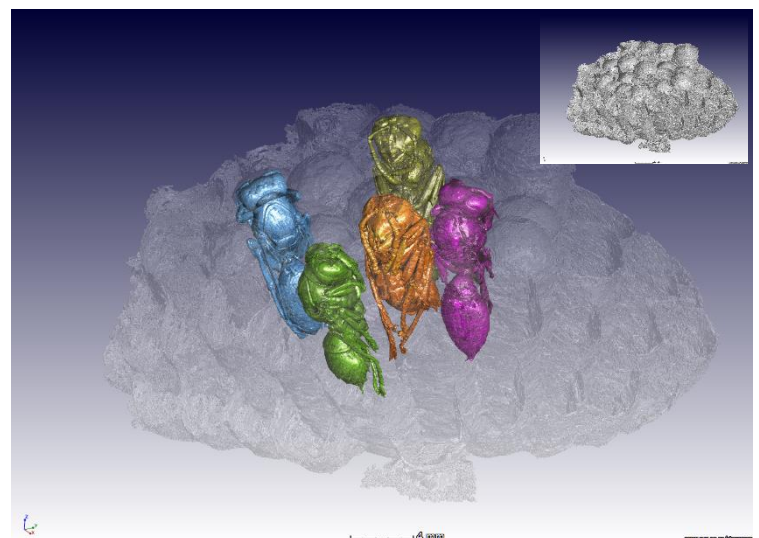
## Welcome

The Stellenbosch CT facility offers state of the art X-ray imaging in 2D and 3D, for researchers and companies from all over the world. This newsletter aims to demonstrate some nice examples and keep in touch with our great clients and colleagues, and maybe gain some new support, therefore please send it on !

### Example of the month: Wasp hive

We scanned a wasp hive and found some interesting contents, which is a nice example of the non-destructive imaging capabilities of microCT. The 5 wasps are coloured for visual impression and all have been dead for a few months prior to the CT scan. Watch a 3D video of this example:  
<http://blogs.sun.ac.za/ctscanner/files/2016/03/wasp-hive.wmv>

Interesting to note: this project total job time was 6 hours including some advanced image processing, the scan itself was 1 hour. It also makes a good example of what is possible when enough time is spent on visualization: we offer visualization and analysis services from any data, you can send us any 3D data and we can make visualizations and analysis similar to this.



**Wasps inside their hive, see more here:**  
<http://blogs.sun.ac.za/ctscanner/3d-imaging-of-a-wasp-hive/>

## Recent publication highlights

### 1. Preferred directionality of defects in powder-bed additive manufacturing

This study using test samples produced with known cavities simulating defects, shows how major cavities and defects prefer the build direction and is important to understand when designing 3D printed parts. Read more here, the article is open access for 2 weeks only! : <http://online.liebertpub.com/doi/pdfplus/10.1089/3dp.2015.0034>

### 2. Frog bones: modern and fossil frog bone morphology compared in 3D

In this work, the segmentation of CT scans of whole modern frogs and fossil frog bones is demonstrated especially nicely in a supplementary material guide (example image shown to the right). The novelty in the article is the use of 3D comparison tools meant for industrial part to part comparisons, for comparing modern and fossil bones. Read more here: [http://palaeo-electronica.org/content/index.php?option=com\\_content&view=article&id=1382:fossil-ct-scan-data-analyses&catid=147:2016&Itemid=568](http://palaeo-electronica.org/content/index.php?option=com_content&view=article&id=1382:fossil-ct-scan-data-analyses&catid=147:2016&Itemid=568)

### 3. MicroCT in Food Sciences: a review article

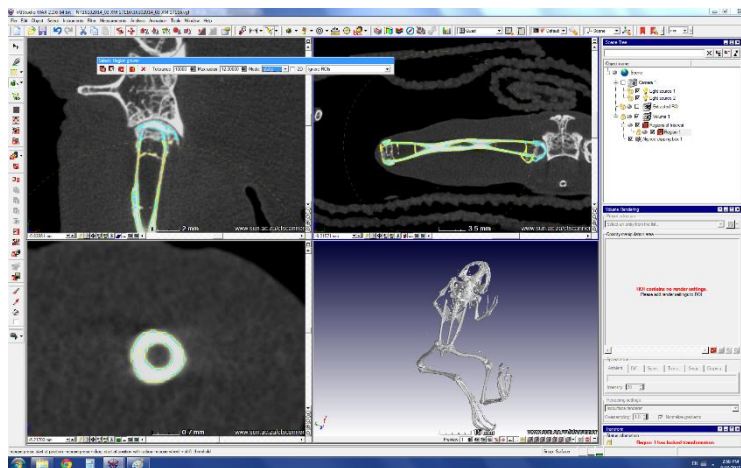
X-ray microCT is a growing technique and in our facility food sciences is one of the leading research users. This review article by PhD student Letitia Schoeman details the method for food scientists and summarizes food science applications to date: <http://www.sciencedirect.com/science/article/pii/S0924224415300054>

### 4. Barite deposit: shape and direction assists in understanding the deposition and history

This study was initiated by a MSc student of 2011 – Olwethu Majodina, who became one of the first NRF interns at the CT facility. During his time as NRF intern he did some research of his MSc topic and the result eventually is this paper. He is therefore one of the founding members of our facility. Read the paper here: <http://www.sciencedirect.com/science/article/pii/S0016706115301610>

## Services Price list 2016

Our prices are listed to the right. We provide quotes by email and if you don't know how to start, read below "how to get started". Always remember: not all CT scans are equal. We provide the best price/quality/speed combination worldwide, guaranteed. We aim to beat any other quotation not only on price, but on all three. Except free scans, we don't do those.



**Image processing step by step guide for frog bone analysis, from a whole-frog scan: for more see the link to article to the left. The whole frog scan was done with alcohol-covered linen wrappings which are visible in the top-right slice view. The 3D view bottom right shows the entire skeleton of this frog.**

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

**\* 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**

**Please note price for international clients: \$150 p/h.**

## How to get started

There are two easy ways to get started.

The first option is to simply submit samples with a request of analysis required by phone email or skype, we will provide a quote then you send the samples.

The second option is to book a 3-hr session to scan and analyze a few samples in your presence and then decide how to proceed with more work.

Quotations are sent by email free of charge, and if you are still unsure of how to start, please attend our free regular training courses or subscribe to this newsletter by email to either of us below

### Contact Us

<http://www.sun.ac.za/ctscanner>

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[lerouxsg@sun.ac.za](mailto:lerouxsg@sun.ac.za)

021 808 9389

### Physical address for sample deliveries:

CT Scanner Facility, Room 1046

PO Sauer building - Dept Forestry and Wood Science

Bosman Street, Stellenbosch

7602

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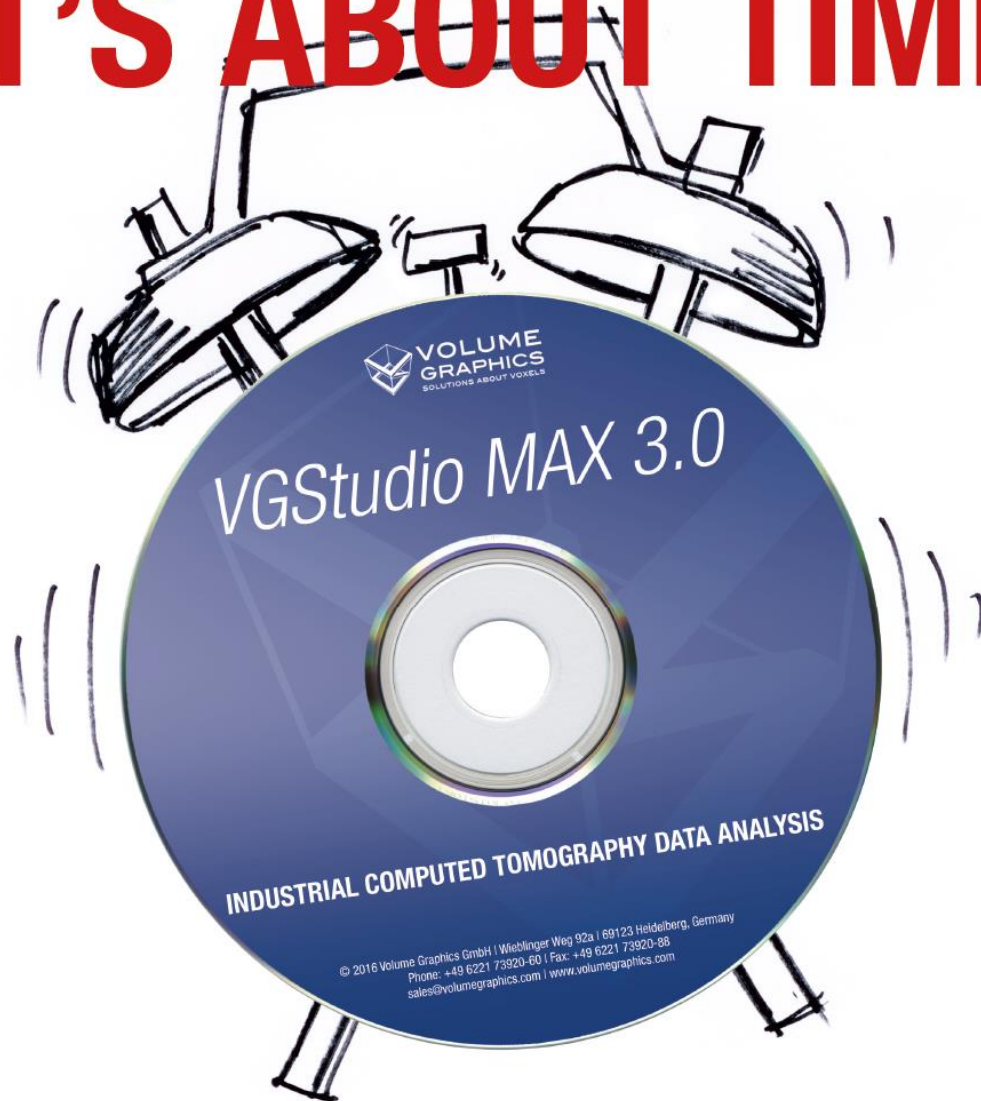
## Acknowledgements

The CT scanner equipment acquisitions were made possible with grants from the National Research Foundation and Stellenbosch University. The Department of Science and Technology Internship program is also acknowledged for its support of this facility. We encourage and welcome any form of sponsorship or support in order to keep delivering the best quality. Stellenbosch University support of CAF allows special internal rates, subject to acknowledgement of our facilities in publications.

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](mailto:anton2@sun.ac.za)**

# IT'S ABOUT TIME



## VGSTUDIO MAX 3.0: THE SOFTWARE YOU'VE BEEN WAITING FOR.

With *VGStudio MAX 3.0*, you inspect your products easily, comprehensively, and non-destructively – in research, production, and quality assurance. The new version of *VGStudio MAX* is more than ever the only software you need to analyze and visualize industrial computed tomography (CT) data.

Contact us! Or visit [www.volumegraphics.com](http://www.volumegraphics.com) to learn more about *VGStudio MAX 3.0*.

**AVAILABLE END OF APRIL 2016**



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