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Virtual Reality Geological Studio (VRGS) Software for geological applications

CASE STUDY

COMPANY FACTFILE

- > Developed by: Dr Dave Hodgetts within the Basin Studies and Petroleum Geoscience Group within The School of Earth, Atmospheric and Environmental Sciences (EPS)
- > Application: 3D data visualisation and interpretation for field based geologists and geophysicists, as well as for geoscientists working with 3D digital outcrop models.
- > Licence: Copyright IP licensed to multiple users through UMIP's Click2Go online licensing portal



“There was a specific problem we had and I developed the software to target that problem”

Dr Dave Hodgetts

ABOUT VRGS

Dr Hodgetts' research group has developed a novel means of 3D interpretation and mapping geological structures, using light detection and range technology (LiDAR). The resulting data is of great importance in the petroleum industry to help understand and improve production from hydrocarbon reservoirs.

At the centre of Dr Hodgetts' research is the development of software called Virtual Reality Geological Studio (VRGS) which is specifically designed for geological applications. VRGS is a Windows based application, which allows the manipulation, interpretation and analysis of LiDAR data in a way that is meaningful to scientists. Though initially developed to solve Oil and Gas production issues, the software is now being developed to address the needs of geologists in other non-petroleum sectors such as geo-conservation.

A LiDAR scanner collects large volumes of 3D point data rapidly (10's-100's thousand points per second), creating a 3D image of a structure such as a cave, cliff or rock formation. This data is then collated and analysed by the unique software which Dr Hodgetts has created. It is capable of analysing the results at a far greater level of detail than has previously been possible.

Research software is a key area in UMIP's strategy to deliver both impact (through the dissemination of research outputs) and commercial returns. In February 2015 VRGS was added to UMIP's online software portfolio - which can be accessed [here](#)

We met up with Dr Hodgetts to find out more...

When did you develop your software and what prompted you?

I started to develop the software in 2003 just after coming to Manchester. Laser scanning was, at that point, just starting to take off in the oil industry as a way of

collecting geological information from geological exposures. As we started to use the data in existing software it became apparent we were not able to use the data to its full advantage. I already had a lot of experience of programming and software development from previous posts, so it was a natural progression to start developing my own application.

Was the application of the software apparent from the outset?

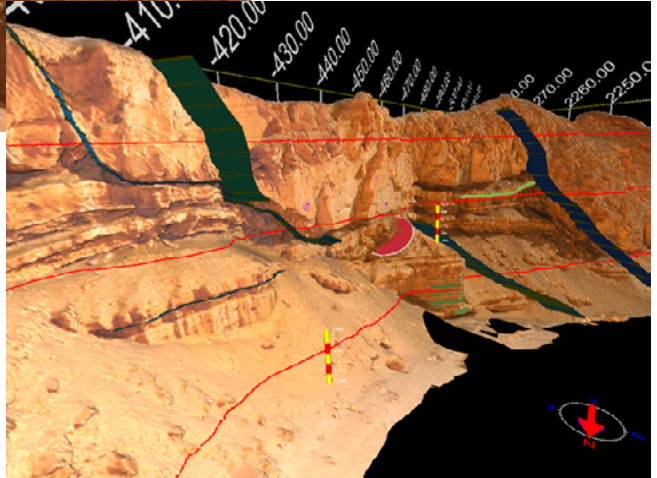
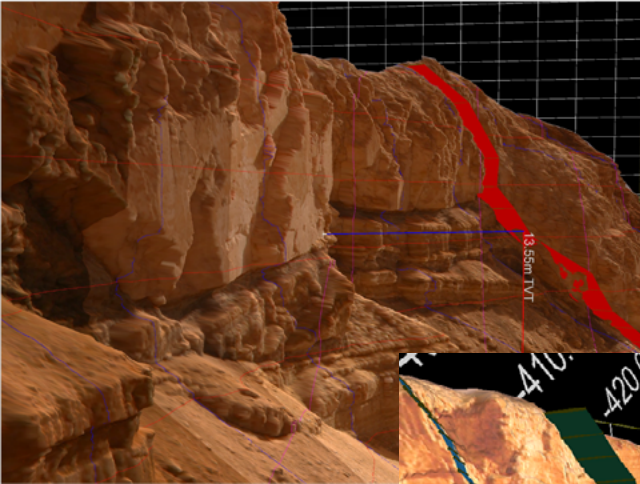
Most definitely. There was a specific problem we had, and I developed the software to target that problem. There have, however, been wider applications that I had not considered that have appeared along the way, but they have, so far, been minor in comparison to the geoscience applications.

How do you feel you have benefitted from licensing this technology out?

Certainly licensing the software has helped raise my profile in the academic community, and if people are using your software they are more likely to be aware of your research and cite you more often. Licensing your software is also a great way of demonstrating impact of your work as you have a track record of who has licences. The licensing process has also given me chance to work with new people internationally who I would never have met at conferences but we do share common research interests. Increasing the user-base of the software has also improved the software itself through suggestions and feedback from the licensees, this benefits our internal research as well.

Has anything been fed back into your research?

The raised profile from the software licensing has seen an increase in overseas PhD applications, but we are still in early days as VRGS has only been on Click2Go for 1 year.



How have you found the Click2Go platform and what did you especially value from the University?

Everything has been straightforward so far. I don't have to do very much at all, it is all handled by UMIP. The fact that I don't have to deal with the licensing issues myself or have to maintain a website means I can focus on the software and the development.


What advice would you offer to colleagues if they have software that they'd like to licence or sell?

Commercial software is a very different thing to academic software, you need a good user interface with a simple, clear layout and common operations should be easily accessible. Stability is also a key issue so debug and test as much as you can before making a release, and make sure you have an adequate user manual. Preparing your software for licensing does take time, but its time well spent as it will improve the


experience for your research team using the software as well. Don't be afraid of giving it a go, everyone I have dealt with at UMIP has been incredibly helpful and supportive.

What's next for VRGS?

VRGS exists in two forms, the "release" version which is what is on Click2Go, and a "research" version which has extra functionality and modules. Currently I am working on tools for working with CT imaging data, and some geological forward modelling modules which build upon the laser scan data. These developments are research driven, but are all modules which eventually will make their way into the release version. These new features will increase the user-base of VRGS and expand the market for the software. Short term goals are to keep listening to feedback and make improvements based on that feedback and to start advertising the software to a wider marketplace.



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