NOT ALL FUN AND GAMES

GAMES MIGHT SEEM TO BE JUST A BIT OF ENTERTAINMENT, BUT THEY ARE TRANSFORMING GEOSPATIAL TECHNOLOGY AND APPLICATIONS FROM REMOTE SENSING TO DEFENCE AND TRANSPORT PLANNING

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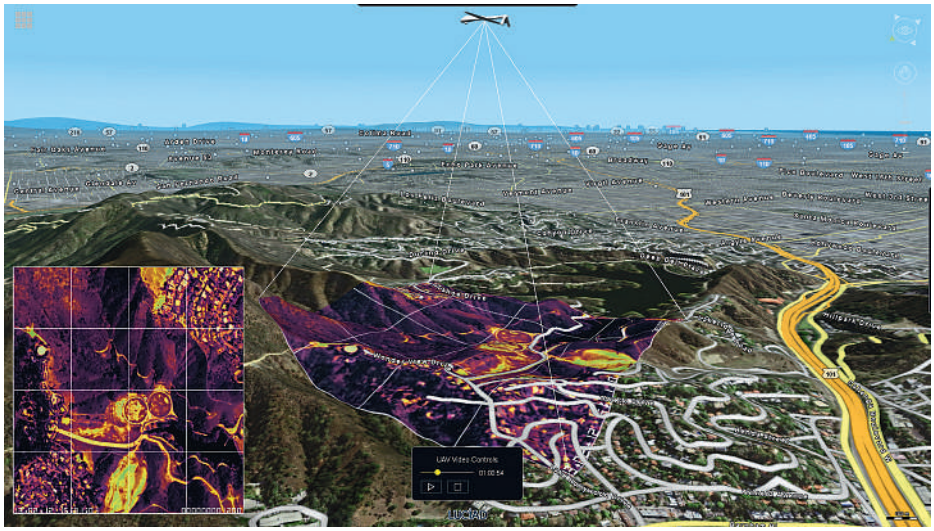

The humble graphics card might once have seemed simply a necessary but unexciting piece of equipment that ensures that human beings can see on a monitor what their PCs are doing. However, PC games and the need to be able to produce high-quality, detailed, textured, flicker-free output in real-time meant that graphics cards started to became supercomputers, thanks to the addition of dedicated graphics processing units (GPUs) that take the heavy lifting away from the PCs more generalist 'brains', the central processing unit (CPU). And as *GeoConnexion International's* columnist Alistair Maclenan points out on page 17, the geospatial industry can learn a lot from the games industry.

Back in 2014, Sumit Gupta of hardware manufacturer NVIDIA explained in our February issue how graphics cards were going to change geospatial data analysis. "A traditional high end dual-CPU system can only analyse a single HD (1080p) video at 15 frames per second. Adding just one Tesla GPU to a CPU server can accelerate software up-to 12 times. With this added performance, 24 hours of HD video can be analysed in just one hour."

In this issue, we look at how his predictions have come to fruit. On page 32, Bart Adams looks at how data from NATO's Global Hawk drones is now being orthorectified and overlaid with other date in real-time, thanks to the use of GPUs in mobile base stations. That's a literally life-saving application of geospatial data that would scarcely be imaginable without the computational power of this former gaming tool.

Meanwhile, on page 30, Dmitry Kudinov reports on a project at Esri that brought together bleeding edge technology to plan transport routes. GPUs, in combination with artificial intelligence and machine-learning tools, were able to radically cut the time necessary to deal with a notoriously complicated geospatial problem.

Indeed, machine-learning itself is proving to have many geospatial applications and on page 38, Mary Jo Wagner explains how remote sensing imagery is being analysed by machines in the US's marshiest and therefore inaccessible areas to automatically identify what's water, what's land and even what kind of vegetation grows where.

I hope you enjoy the issue.

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