

Virtalis Partners with Cambridge Flow Solutions

Technology Fusion to Create Virtual Reality Computational Fluid Dynamics

CAMBRIDGE Flow Solutions (CFS) is a leader in the provision of proprietary software and services for Computational Fluid Dynamics (CFD). It has now formed a partnership with Europe's leading visualisation company, Virtalis, to develop a method of seeing CFD data in 3D stereo. This technology will be known as GigaCell VR.

CFD is the process of predicting how fluids will behave by using modern computing power to solve equations that have been around since the 19th century. Understanding the behaviour of fluids is the key to much that we take for granted; from the car engine to the jet airliner, or even the ability to understand blood circulation in the body. So involved are the solutions to these deceptively brief equations that, until recently, they were impenetrable to all but a few institutions with huge supercomputers. Advances in computing and networking technologies mean that it is now possible to build a computer capable of these calculations from standard PC hardware.

Ed Lewis, business manager at CFS, explained: "The new system will allow people to literally immerse themselves in their CFD data. Our clients will be able to hold boardroom style discussions actually inside very elaborate renderings. This ability will enable them to focus on what they need to alter to markedly improve their product. I believe that GigaCell VR won't be just an impressive gimmick used by the industry's early adopters. Its advantages will be so apparent that soon all mainstream CFD users will move to 3D VR post-processing."

It is expected that aerospace, turbomachinery, combustion, motorsport, oil and gas and the chemical industry will be the sectors and activities with the most to gain from this new technology.

Simon Harvey, a software development engineer at CFS, illustrated the utility of the new product in the motorsport arena. He said: "In order to simulate the flow round an F1 car, gigabytes of data are generated, but one has to understand the details of the flow if one is to discover the crucial element that could make the car go faster. Our existing products already help by interrogating the data in such a way as to highlight such features, but being able to view it in 3D should make that differentiation even clearer."

Andrew Connell, technical director at Virtalis, commented: "Our combined system will be able to run CFD calculations over a few hundred million cells and we are developing a parallel post processor that will be infinitely scalable which will extend the life of the system. When in use, the system will appear to be effortless, but, in fact, up to a terabyte of data will be interrogated in real time and displayed in 3D. As the full model moves, the human brain will be able to simultaneously take in the whole problem, understand what it is seeing and, crucially, focus on the single critical point that requires further analysis."

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