

Victor Chang

Email: vic1e09@ecs.soton.ac.uk, University of Southampton and University of Greenwich

**Topic: Simulations and Modelling in Cloud Computing: Contributions offered by Organisational Sustainability and Enterprise Portability for Industry and Academia**

**Methodology** Simulations, modelling and case studies.

## Background

Cloud Computing Business Framework (CCBF) is proposed to help organisations achieve good Cloud design, deployment, migration and services. There are four key areas to be addressed, where Organisational Sustainability and Enterprise Portability are two selected areas for presentation.

## Organisational Sustainability

Organisational Sustainability Modelling (OSM) is proposed to measure cloud business performance with extensive case studies. Data from Apple/Vodafone, NHS, SAP, Oracle, Salesforce, VMware, HP, KCL, Universities of Southampton and Greenwich, and a number of SME are presented and analysed in the form of statistical computing and 3D Visualisation. ROI results have proven to be valuable not only for publications but also for collaborators.

## Enterprise Portability

Portability involves migrating applications and services from desktops to clouds and between different Clouds. Two domains are used for demonstration:

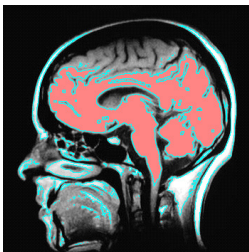
**Finance:** The Financial Software as a Service (FSaaS) is our proposal to improve accuracy and quality of both pricing and risk analysis. Simulations in Monte Carlo Methods (MCM) and Black Scholes Model (BSM) are used for demonstration. This work is in collaboration with IBM US and Commonwealth Bank Australia, with published results.

**Health:** Dynamic 3D modelling and simulations with DNA, genes, proteins, tumour and brain images have been used to demonstrate portability in Clouds with numerous 3D images and analysis. There is collaboration with KCL, NHS and University of Oxford.

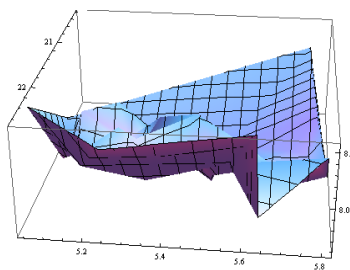
## Future Work

CCBF has been extensively used in several organisations such as GSTT, KCL, Universities of Greenwich, Southampton, Oxford, VMware, Vodafone/Apple, Salesforce, IBM and so on. CCBF can positively impact e-Research, Cloud, Grid, Health, Finance and Education Communities.

## Some screenshots computed by the CCBF



One section in brain segmentation



A SME 3D analysis (cloud business performance)