

# High-level urban monitoring

A consortium of organisations including CSIRO has received funding through a Western Australian advanced computing initiative to develop a high-powered 3D visualisation and digital aerial imagery system to improve the monitoring, planning and management of urban land and water.

The project – ‘High performance segmentation and 3D reconstruction using digital aerial images in urban and peri-urban environments’ – is a partnership between CSIRO and six Western Australian water and land agencies.<sup>1</sup>

The project will develop detailed multiple-view 3D reconstruction and segmentation algorithms for fine-scale monitoring of urban environments, using the Perth urban and urban fringe areas as a case study.

According to CSIRO, the outcomes of the project will include:

- Improved understanding of trends in urban assets and land uses at an unprecedented scale and accuracy. This will enable the early detection of problems, better evaluation of public programs, and improved land and water management by government and urban water utilities.
- Improved river and wetland foreshore management through the identification of trends in urban vegetation (to link with public intervention programs and broader environmental pressures such as climate change); high-water-use and irrigation efficiencies that can be targeted with water demand management programs; and better estimation of urban storm flows from newly urbanised areas (as a result of changes to impervious surfaces).
- Showcasing the use of advanced computing resources for generating information from terabyte-magnitude data volumes.

The project is funded through iVEC, a joint venture between CSIRO, Central TAFE, Curtin University of Technology, the University of Western Australia and Murdoch University that is supported by the WA Government.

iVEC promotes the use and uptake by industry and government of high-performance computing (HPC), visualisation and large-scale data storage within WA. Application areas include nanotechnology, high-energy physics, medical and mining training, medical research, mining and petroleum, architecture and construction, multimedia and urban planning.



An aerial colour data image of riparian vegetation, houses and the sprinkler distribution impacts on lawn health on an irrigated oval in Perth. CSIRO

<sup>1</sup> The partnership involves CSIRO Mathematical and Information Sciences (CMIS), CSIRO Land and Water, the WA Department of Environment and Conservation, the WA Department of Water, the Swan Catchment Council, WA Water Corporation, WA Land Information System (WALIS) and Landgate – the state government’s register of land ownership and survey information.



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