

Of the earth and the heavens: towards seamless positioning

Washington Ochieng

Wednesday, 22 July 2009 - 17:30

Location: Clore Lecture Theatre, Huxley Building

Abstract

Today, the Global Positioning System (GPS) is a universally accepted tool for positioning and timing, supporting a wide range of applications including multi-modal transport navigation, engineering dimensional control, synchronisation of telecommunications networks, geodetic survey and asset management. However, getting to this stage has not been easy, requiring significant investment in research and development. Furthermore, problems, such as limited or no signal reception and error modelling, still restrict access to full GPS performance in difficult environments. The resolution of these problems should open the way to the realisation of the dream of positioning for everyone and everything, everywhere and all the time. The lecture starts with the limitations of GPS, and takes the audience through a journey over the last 18 years to improve positioning and navigation through GPS augmentation, integration with terrestrial systems and spatial databases, and advanced user positioning algorithms. The lecture concludes by making the case for the continued collaboration between the earth and the heavens. Specifically, the lecture looks forward to novel terrestrial radio-positioning and sensor technologies, the new signals from modernised (GPS) and new space-based systems (e.g. GALILEO), and how these could contribute to the eventual realisation of high performance, affordable seamless and ubiquitous positioning. A pre-lecture tea reception will take place in the Senior Common Room, Level 2, Sheffield Building, from 16:45.

RSVP: Attendance is free, but with registration in advance:

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Biography

Washington Ochieng was promoted to the Chair in Positioning and Navigation Systems in 2007. Prior to joining Imperial in 1997 as a Lecturer, he was Principal Engineer at Racal Electronics Plc, having joined from the Universities of Nariobi and Nottingham, where he undertook his BSc, and MSc and PhD studies respectively. He has carried out leading research on GPS measurement error modelling, design of new Global Navigation Satellite Systems (GNSS), including GALILEO and augmentation to GPS, novel terrestrial positioning systems, systems integration and user receiver/sensor algorithms. Professor Ochieng is a Fellow of the Royal Institute of Navigation and the Institution of Civil Engineering Surveyors. He is also a Member of the Institution of Civil Engineers and the US Institute of Navigation. He was a member of the team that successfully designed the European Geostationary Navigation Overlay Service (EGNOS) and previously served on the management committee of the Canadian GEOIDE research network of excellence. In May 2009, he was named by GPS World magazine among the global GNSS Leaders to watch.