The Distinctive Challenges of Pervasive Games as Distributed Real-Time Applications

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Abstract

Pervasive games are an emerging form of distributed real-time application that extend computer gaming out into the real world. From the city streets to the remote wilderness, players with mobile computing devices move through the world, sensors capture information about their current context, including their location, and this is used to deliver a gaming experience that adapts to where they are, what they are doing, and even how they are feeling. Players becomes unchained from their consoles and experience a game that is interwoven with the real world and that is potentially available at any place and any time. Pervasive Games raise significant new challenges for the designers of distributed real-time applications, many of which arise from the distinctive characteristics of the underlying fabric of sensing and wireless communications technologies that constitute the ubiquitous computing infrastructure.

Drawing on a series of recent collaborations with artists to develop, tour and study pervasive games, I will articulate these distinctive design challenges, exploring issues such as support for location-based play, revealing the nature of the ubiquitous infrastructure to designers, and adapting long-term persistent games with patterns of daily life.

Biography

STEVE BENFORD is the Professor of Collaborative Computing at the University of Nottingham where he founded the Mixed Reality Laboratory, a dedicated studio facility where computer scientists, psychologists, sociologists, engineers, architects and artists collaborate to explore the potential of ubiquitous, mobile and mixed reality technologies to shape everyday life. He has also been a member of the EPSRC-funded Equator project (www.equator.ac.uk) and is currently the Scientific Manager of the European Integrated Project on Pervasive Gaming (www.pervasive-gaming.org). In its broadest terms, his research addresses the design of new technologies to support rich social interaction. In the late eighties, he was mainly focused on distributed systems support for group communications. The nineties saw him working on collaborative virtual environments, with a growing interest in entertainment applications, including collaborating with artists groups to create live performance works such as the NOW’96 Poetry Slam (1996), the Out of This World inhabited television show (1998) and the touring performance Desert Rain (1998). More recently, he has worked with mobile technologies, continuing his collaborations with artists such as Blast Theory to create a series of performances and games including Can You See Me Now? (2000), Uncle Roy All Around You (2003), Savannah (2004) and Day of the Figurines (2005). Ethnographic studies of these experiences have yielded new insights in interaction design and supporting toolkits and frameworks, contributing to over 250 published works at venues such as CHI, Multimedia, Ubicomp and SIGGRAPH. He was a recipient of the 2003 Prix Ars Electronica Golden Nica for Interactive Art and was BAFTA nominated in 2000, 2002 and 2005.