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TARGETED DYNAMIC COMMUNICATIONS USING IMMERSIVE VIRTUAL ENVIRONMENTS AND INTERACTIVE AI-ENABLED CHAT INTERFACES TO INCREASE AWARENESS OF EARTH OBSERVATION FOR CLIMATE RESILIENCE

Abstract

Satellite Earth Observation (EO) is a critical yet complex discipline often inaccessible to end users including governments, development agencies, and private companies. Equally, such complexity masks the value of EO and its benefit for economy, society and environment from the general public, including students and youth. This project combines immersive virtual environments and interactive AI-characters to engage and communicate with individuals rather than larger audience 'segments', regarding the benefits of EO for climate emergencies. This is based on that individual's background and interests and the natural progression of the conversation as a result of those interests. Unlike static, traditional communication methods — such as websites, reports, white papers, and books — that cannot adapt to the audience's interests or knowledge, dynamic communications tailor content in real-time based on an individual's engagement, experience and understanding. Borrowing from the gaming industry, which excels in engaging individuals in complex, adaptive narratives and individualised learning paths, we apply similar tactics to clarify complex EO concepts. The end result of these interactions is for the individual to have a deeper awareness and understanding of EO technologies and their potential benefits to their work. Our approach involves identifying relevant materials (reports, white papers, blogs, impact evaluations) and systematising and coding their content into sub-parts/sub-components. Those components are then aligned to the individual's specific needs, interests and intentions, based on our understanding of those typical audiences. This method uses a range of artificial intelligence tools to detect the individual's interests, existing knowledge, intents, and direction of their queries and conversation. The interface then provides responses in the form of text based answers, and also by dynamically providing multimedia, including video and images, that aligns and enhances the conversation. The paper includes implemented examples of these approaches, focused on the sectors of forestry and urban development in developing countries, and also includes an overview of the outcomes and the results of these initiatives. We hypothesise that dynamic storytelling using modern gaming industry methods will significantly increase engagement and understanding of EO among various demographic groups of audiences. This method represents a forward-looking approach to overcome the challenges of complex scientific communication, emphasising the need to adapt and engage with individuals, rather than broad groups.