The World Generator 2.0 - Information Processing Structures, Sentience, Resilience and Intelligence

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The World Generator 2.0 is an open-source, intelligent virtual world generating system with two modes of operation: first, it exists as a standalone virtual space generator functioning in concert with a specially authored database and intelligent functions. Second, the system is also designed to be a visualization mode for The Insight Engine 2.0. The World Generator enables the construction and editing of virtual environments in real time. The original notion was --- could one build a generator of virtual worlds such that one could sit down and instantaneously use an interface system to create and edit conceptual and 'aesthetic' virtual worlds in real time? In terms of information processing Erkki Huhtamo coined the term World Processing for this activity. (conversation with Seaman) Seaman working with software developer and theorist Quran Karriem, are building a new intelligent version of the world Generator which includes AI, and natural Language API, interactivity with multiple networked researcher/authors, and Micropeers (AI Collaborators). This user-friendly virtual world generator enables interactants to construct and navigate virtual worlds by making choices from a spinning virtual interface of container wheels in conjunction with a physical interface table (or mouse and keyboard). These rolodex-like shelving container wheels house a series of different media-elements and processes including 3D objects, 2D images and texts, sound bites, and digital movies, as well as processes relevant to altering an entire virtual world. Seaman coined the term E-phany Physics to describe a playful, authored, abstract physics[1]. Working with the Unity Game engine as an informatic generator space will be quite unique. The user of the system can also explore a set of built-in generative chance processes to construct worlds. One can also attach behaviors to the media-elements, apply still and movie texture maps, as well as make the media-elements transparent. When the participant navigates through the virtual world, audio samples are played back from relevant positions. The work explores emergent meaning and is different for each participant. A networked version of the work (Version 1.0) has been shown internationally, and enables people in two parts of the world to inhabit and operate within simultaneous copies of the same environment, communicate via videophone, and view the alternate participant as a video avatar. This avatar shows the relative position of the alternate participant within the virtual space.

The embodiment of Theoretical and Foundational Problems (TFP) in Information Studies, is undertaken with The World Generator 2.0, through researching a model for a Neosentient system. The goal is to arrive at a model for an intelligent autonomous learning robotic system via transdisciplinary information processes and information exchanges. The long-term goal of this model is to potentially enable Neosentience to arise via the system's functionality. Research related to this goal is accomplished through the use of an intelligent transdisciplinary database, search engine, a natural language API, a dynamic set of visualization modes, and a series of independent AI collaborators (what we call Micropeers) — *The Insight Engine 2.0* (I_E). Pragmatic benchmarks are used to define Neosentient

robotic entities (as opposed to the Turing Test): the system could exhibit well defined functionalities: It learns (enactive approach and others like conversation theory); it intelligently navigates; it interacts via natural language; it generates simulations of behavior; it metaphorically "thinks" about potential behaviors before acting in physical space; it is creative in some manner; it comes to have a deep situated knowledge of context through multimodal sensing (the embodied, embedded approach); and it displays mirror competence. Seaman and Rössler have entitled this robotic entity *The Benevolence Engine*. They state that the inter-functionality of such a system is complex enough to operationally mimic human sentience. Benevolence can in principle arise in the interaction of two such systems. Synthetic emotions would also become operative within the system. The System would be benevolent in nature. The concept of Neosentience (coined by Seaman) was first articulated in the book *Neosentience / The Benevolence Engine by* Seaman and Rössler.[2]

The World Generator 2.0 populates an environment using pseudo-random and generative techniques to select pre-designed 3D models, sound, video, digital photographs, text fragments and other digital information processes, motions and behaviors from a database. Additionally, the system employs a model of terrain generation, using Perlin noise to create height differentials that suggest meaningful relationships based on metadata extracted using natural language processing operations on the content. The height and terrain signatures create a sense of 'gravity' that spatializes the relationships between different content items. The terrain and gravity-based relationships change dynamically based on the object selected by the user. The system can represent and map relationships across a wide range of text files, including scholarly articles, websites and metadata related to media files and informational objects. The system builds cross-disciplinary, intelligent information bridges.

Transdisciplinary Information Exchange System
World Generator would call in relevant information from the database via a Intelligent Natural Language API, and thought individual choice. This would include information related to our Autonomous Robotics Goal, Bio-mimetics, the development of a Bio-algorithm exploring a set of relational items related to the Embodied, Embedded, Enactive and Extended paradigm. The system would incorporate intelligent Information Processing Structures and also explore the visualization of new forms of Mathematics reflecting entailment structures and their functioning. It would fill a world with concentric rings, the center being closest to the mindset given by the user as a bisociation or poly-association. Additionally, materials related to all of the topic areas would be available to the user in this world and would enable perusal outside a specific research domain.

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[1] Seaman (2000) Motioning toward the emergent definition of E-Phany physics

http://projects.visualstudies.duke.edu/billseaman/textsE-phany.php (accessed 7 June 2014)

[2] Rössler, O., Seaman W. (2011) Neosentience / The Benevolence Engine, Intellect Press, London.