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Embedded Hybrid Intuition: A Deep Learning and Fuzzy Logic Approach to Collective Creation and Computational Assisted Narratives

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Abstract : The current work shows the methodology developed to create narrative lighting spaces for the multimedia performance piece 'cluster: the vanished paradise.' This empirical research is focused on exploring unconventional roles for machines in subjective creative processes, by delving into the semantics of data and machine intelligence algorithms in hybrid technological, creative contexts to expand epistemic domains trough human-machine cooperation. The creative process in scenic and performing arts is guided mostly by intuition; from that idea, we developed an approach to embed collective intuition in computational creative systems, by joining the properties of Generative Adversarial Networks (GAN's) and Fuzzy Clustering based on a semi-supervised data creation and analysis pipeline. The model makes use of GAN's to learn from phenomenological data (data generated from experience with lighting scenography) and algorithmic design data (augmented data by procedural design methods), fuzzy logic clustering is then applied to artificially created data from GAN's to define narrative transitions built on membership index; this process allowed for the creation of simple and complex spaces with expressive capabilities based on position and light intensity as the parameters to guide the narrative. Hybridization comes not only from the human-machine symbiosis but also on the integration of different techniques for the implementation of the aided design system. Machine intelligence tools as proposed in this work are well suited to redefine collaborative creation by learning to express and expand a conglomerate of ideas and a wide range of opinions for the creation of sensory experiences. We found in GAN's and Fuzzy Logic an ideal tool to develop new computational models based on interaction, learning, emotion and imagination to expand the traditional algorithmic model of computation.

Keywords : fuzzy clustering, generative adversarial networks, human-machine cooperation, hybrid collective data, multimedia performance
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