EVOLUTION OF GENERATIVE ART SYSTEMS: METHODS, MILESTONES AND OPEN PROBLEMS

Viktor Matanski

Abstract. *This article explores how generative art systems have evolved, from the rule-based and algorithmic experiments of the 1960s to today's neural and multimodal models. Looking across visual art, music and literature, it traces three broad stages in this development. The first includes early computational approaches such as procedural generation, L-systems, cellular automata and stochastic methods. The second marks the shift toward data-driven techniques, including evolutionary algorithms, generative adversarial networks, variational autoencoders and diffusion models. The third and most recent, involves the rise of cross-modal and foundation-model-based systems that can generate content across multiple artistic domains. Along the way, the article discusses key milestones, from Harold Cohen's AARON to DALL·E, MusicLM and GPT-4, within their wider methodological and cultural settings. It concludes by highlighting several challenges that remain unresolved, including how to evaluate aesthetic quality reliably, how to think about authorship and copyright, how to balance control with creative freedom and how to build unified frameworks for cross-modal artistic translation.*

Key words: Generative Art Systems, Computational Creativity, Algorithmic Art, Multimodal Generation, Cross-Modal Artistic Translation, Diffusion Models, Foundation Models, Aesthetic Evaluation, Authorship, Creative AI

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Viktor Matanski
Paisii Hilendarski University of Plovdiv,
Faculty of Mathematics and Informatics,
236 Bulgaria Blvd., 4027 Plovdiv, Bulgaria
Corresponding author: `matanski@uni-plovdiv.bg`