

算法字体与人工智能字体设计方法研究

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摘要:在艺科融合的新文科建设背景及人机耦合的设计趋势下,以算法、人工智能作为创造性技术工具的生成式字体设计,在语义与美学层面重新诠释了互动性中形式与语境的相互渗透。旨围绕算法字体及生成式对抗网络驱动的人工智能字体展开形式分析、设计方法与技术路径的探讨。主要论述基于数学定理、计算几何的算法字体,利用数据和参数来编码形状语法与视觉系统;基于生成式对抗网络GAN的深度学习,驱动人工智能进行字体生成与风格迁移。在字体设计实践中,允许人工智能探索人类创造力的协作维度,这种方法是否能作为一种创新策略嵌入到字体设计流程中,保持系统的开放性,赋予技术系统与人类主体之间不断发展的对话。同时,使字体设计突破其工具性使命,将设计挑战作为进化和创新的契机,为互动系统及其社会技术环境的设计提供了一种新方法。

关键词:算法字体设计;人工智能字体设计;生成式字体设计;机器学习;生成式对抗网络;设计系统

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Algorithmic and Artificial Intelligence Font Design Methods

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Abstract: In the context of the new liberal arts construction of art and science fusion and the design trend of human-computer coupling, generative font design with algorithms and artificial intelligence as creative technical tools reinterprets the interpenetration of form and context in interactivity at the semantic and aesthetic levels. This paper discusses the formal analysis, design methods, and technical paths around algorithmic fonts and generative adversarial network-driven AI fonts. It mainly discusses how algorithmic fonts based on mathematical theorems and computational geometries utilize data and parameters to encode shape grammars and visual systems; and how deep learning based on generative adversarial network GAN drives AI for font generation and style migration. It also discusses whether an approach that allows AI to explore the collaborative dimensions of human creativity in practical font design can be embedded in the font design process as an innovative strategy, to keep the system open and empower an evolving dialog between technological systems and human subjects. At the same time, it allows font design to break out of its instrumental mission and uses design challenges as opportunities for evolution and innovation, offering a new approach to the design of interactive systems and their socio-technical environments.

Key words: algorithmic font design; artificial intelligence font design; generative font design; machine learning; generative adversarial networks; design systems

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