

Between the Devil and the Deep Blue Sea: The Application of Machine Learning Towards a New Urban Vernacular in Liverpool's UNESCO Maritime Mercantile City Buffer Zone.

Our technological evolution to the post-digital age has resulted in an unprecedented challenge to the identity and authorship of the architect within the design process. Improvements in computer processing power have provided instant alternate means of decodifying complex design problems through generative algorithms that imitate the evolutionary processes of nature. Machine learning has further exacerbated this slow creep into the designer's remit through the computing power of big dataset analysis and processing. This paper explores the impact that machine learning may have on architectural and urban design disciplines, illustrated by experimentation on the transposition of urban forms generated from a dataset of existing images, delivering a new urban vernacular.

The work is located inside the under-threat Liverpool Maritime Mercantile City UNESCO World Heritage Buffer Zone and proposes a hypothetical 'new' urban form within the zone, generated from a dataset of existing images of Liverpool through machine learning processes. This speculative 'new' buffer zone is proposed to mediate between the stakeholders of community, UNESCO and business between priorities of world heritage site heritage preservation, liveability and economic fitness by generating forms uniquely derived only from existing data and patterns of the City.

The study analyses the human-centred issues that this methodology introduces, identifying obvious limitations and exploring future applications. The paper concludes by speculating on the impact that machine learning processes may have on the intellectual property rights and authorship of the architect. It outlines a strategy to proactively position the discipline outside the conflict between a protracted time intensive iterative human-centred design and the rapid onset of automated processing represented by machine learning processes.

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