

Visual Simulation for the Relationship of Urban Fabric

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Abstract : This article is about the urban form of visualization by Cityengine. City is composed of different domains, and each domain has its own fabric because of arrangement. For example, a neighborhood unit contains fabrics such as schools, street networks, residential and commercial spaces. Therefore, studying urban morphology can help us understand the urban form in planning process. Streets, plots, and buildings seem as urban fabrics, and they configure urban form. Traditionally, urban morphology usually discussed single parameter, which is building type, ignoring other parameters such as streets and plots. However, urban space is three-dimensional, instead of two-dimensional. People perceive urban space by their visualization. Therefore, using visualization can fill the gap between two dimensions and three dimensions. Hence, the study of urban morphology will strengthen the understanding of whole appearance of a city. Cityengine is a software which can edit, analyze and monitor the data and visualize the result for GIS, a common tool to analyze data and display the map for urban plan and urban design. Cityengine can parameterize the data of streets, plots and building types and visualize the result in three-dimensional way. The research will reappear the real urban form by visualizing. We can know whether the urban form can be parameterized and the parameterized result can match the real urban form. Then, visualizing the result by software in three dimension to analyze the rule of urban form. There will be three stages of the research. It will start with a field survey of Tainan East District in Taiwan to conclude the relationships between urban fabrics of street networks, plots and building types. Second, to visualize the relationship, it will turn the relationship into codes which Cityengine can read. Last, Cityengine will automatically display the result by visualizing.

Keywords : Cityengine, urban fabric, urban morphology, visual simulation

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