Conference Poster

Visualizing Transport Futures
The potential of integrating procedural 3d modelling and traffic micro-simulation in Virtual Reality applications

Author(s):
Erath, Alexander L.; Maheshwari, Tanvi; Joos, Michael; Kupferschmid, Jonas; van Eggermond, Michael A.B.

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FUTURE CASE STUDIES

The potential of integrating procedural 3D modelling and traffic micro-simulation in virtual reality applications

BACKGROUND
Visualization plays an important role in transportation planning. To communicate plans and policies that affect transport and travel, stakeholder involvement is crucial. Such involvement can take place through a trade-off with other transport modes, visualization is often used in early stages to illustrate the potential of a project to traffic safety, society or social inclusiveness. Planning visualizations are used to communicate visions on a people’s behalf, their needs, reactions and infrastructure that does not exist today.

VR IN TRANSPORT PLANNING
Seel for visualizations to communicate future design changes and newly as photo, montages or simulation videos. Recent and ongoing technological development in the field of Virtual Reality (VR) offers new opportunities for visualization and engagement in transport research.

BEHAVIOURAL EXPERIMENTS
Walking and cycling is a multi-sensory experience which includes audio, visual, somatic sensory, olfactory and vestibular sensory stimulation. Conducting surveys to understand the perceptions of users is increasingly common, but even for the most detailed survey, users cannot provide an experienced design.

STATED PREFERENCE SURVEY
The opening of new infrastructures can happen without opinion of long-term studies to assess impact of infrastructural changes on travel. However, even with new surfaces, the new infrastructure has actually been built. Revealed preference studies can overcome some of those limitations. Revealed preference studies can overcome some of those limitations.

COMMUNICATION AND PUBLIC ENGAGEMENT
A common virtual reality application for architectural design and urban planning purposes is to simulate traffic and transportation systems. However, research and applications in a transport and traffic planning context may not be as common. Such applications may have to be further developed to be used in a public engagement or collaborative design process.

DRIVING SIMULATOR
Driving simulators have been used in research transport research since the 1960’s to study driver behaviour and traffic safety. The simulation environment allows for standardized data collection and can be used to study the perception and review physical reactions that differ from real traffic and travel situations.

The PIPELINE
Integration in Game Engine

To explore the potential of integrating Virtual Reality applications for transportation research we are planning to prepare a software platform that integrate City Engine (procedural modelling), 3DS Max (geometric modelling), PTV Vissim (traffic simulations) and Unity (game engine) supporting versatile output formats and applications.

We chose to use Unity to combine both, interactive visualizations and traffic simulations. Using the Complete Street Rule we can automatically generate numerous 3D models of streets in an interactive fashion. This interaction loop is important to conduct user acceptance on the potential of VR and identify the most important factors that the visualizations are focused on VR applications that can fill existing methodological gaps or lead to more efficient and effective study designs. It will be important to conduct qualitative studies to understand the added value of VR and identify the most important factors that the visualizations are focused on VR applications that can fill existing methodological gaps or lead to more efficient and effective study designs. It will be important to conduct qualitative studies to understand the added value of VR and identify the most important factors that the visualizations are focused on VR applications that can fill existing methodological gaps or lead to more efficient and effective study designs.

As immersive virtual environments become more accessible, the potential applications are fast expanding beyond traditional gaming industries. Transportation planning and urban design have also illustrated, in one sector where Virtual Reality has been used to simulate traffic and transportation systems.

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Conclusión y OUTLOOK
In any field of application, it will be important to carefully consider the potential for immersive virtual environments to speed up methodology processes or to lead to more efficient or effective study designs. It will be important to conduct qualitative studies to understand the added value of VR and identify the most important factors that the visualizations are focused on VR applications that can fill existing methodological gaps or lead to more efficient and effective study designs. It will be important to conduct qualitative studies to understand the added value of VR and identify the most important factors that the visualizations are focused on VR applications that can fill existing methodological gaps or lead to more efficient and effective study designs. It will be important to conduct qualitative studies to understand the added value of VR and identify the most important factors that the visualizations are focused on VR applications that can fill existing methodological gaps or lead to more efficient and effective study designs. It will be important to conduct qualitative studies to understand the added value of VR and identify the most important factors that the visualizations are focused on VR applications that can fill existing methodological gaps or lead to more efficient and effective study designs.

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