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SESSION 8
09:00 - 10:00

ROOM C - SALA DE VIDEOCONFERENCIAS

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**Citographer: Developing a
Toolkit for On-Site Mapping
with Non-human Senses**

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Introduction

This paper expands on 'Citography', an interdisciplinary PhD research exploring the transformative role of digital technologies in urban environments. In this phase the research focusses on the development of an urban mapping toolkit, building upon previous mapping experiments, harnessing the power of open-source and open data platforms. This step aims to refine urban mapping methods and advance critical cartographies, offering more profound insights in the urban impact of digital technologies. The presented design attempts are not just a set of tools but an approach to spatial understanding, blending different mediums and interdisciplinary knowledge serving a novel approach to mapping urban digital dimensions.

Context

The initial version of the Citographer toolkit was developed as part of a collaboration with Fieldstation Studio, led by Corneel Cannaerts and Michiel Helbig in summer 2023 at Columbia University in New York City. Under the title 'Architectures of Compression: excursions on Post-Digital Media Ecologies', it explored the impact of digital media on New York City, in order to further develop the concept of 'compressed city'. The studio undertook a fieldtrip collecting data using mixed tools, smartphone applications, gps tracking, sound recordings, more analogue methods and drawings based on observations during the fieldtrip. This collective experience and resulting data formed a basis for developing and testing urban mapping tools and methods, using tempo-spatial modeling, data scraping and visualization. This led to an interactive digital map capturing the collective urban experience, inspiring a reevaluation of mapping methods for more localized, on-site interaction with the environment.

Current Stage of Design

Building on the insights gained from the collaboration with Fieldstation Studio, the current project phase focuses on developing the Citographer toolkit, which consists of a Blender add-on that allows to import various forms of geolocated data: 3D models and geospatial data downloaded from opensource and commercial repositories, sensor logging data, images from smart phones or scraped from various websites. While these tools allow for data rich mappings of mediated experiences, we are currently developing an in-situ mapping and drawing tool. This tool, in its prototyping and testing stages, is designed with integrated IoT sensors to capture and translate environmental elements like noise, temperature, radio waves, and color spectrum into physical drawings. This approach is not just mapping but also about performing and engaging the person using the tool and viewers with the digital dimensions of urban environment.

Theoretical Framework

The Citography research project is an interdisciplinary collaboration between the KU Leuven Faculty of Architecture and the Faculty of Engineering Technology, that critically examines the impact of technology on urban environments. The deployment of technologies can not be isolated from its urban and societal context, i.e. it is approached as 'Situated Technology' adapting Donna Haraway's notion of 'Situated Knowledge' (1988). Haraway argues for a more subjective, contextualized understanding of knowledge, challenging the traditional notion of objectivity. A such, 'Situated Technology' emphasizes the development of tools that are aware of their context – both in terms of physical location and the cultural environment. This suggests that the developed urban mapping tools are not just globally applicable technologies but are adaptable to the unique nuances of different urban settings. They are designed to enhance human sensory experiences, thus providing richer insights into the urban fabric, seen through the lens of those who inhabit and interact with it.

For instance, the Citographer toolkit's design draws from the previous experiences, adapting for re-visiting spaces from fieldtrip trajectory in New York City. It gathers data based on its immediate surroundings—the scale is not limitless but is defined by the researcher's location, specificity of sensors, and the duration of the experience. Its operational speed and the nature of urban information it collects are designed to mirror the specific attributes of the urban landscape, shaped by personal choices. This level of adaptation ensures that the toolkit not only captures a particular moment of the city but also provides a narrative intertwined with the researcher's observations, annotations, and sketches, fostering a close dialogue with the context being situated.

While there is an extensive body of research on design and mapping tools in architecture and urban design, they mainly focus on technology as a medium for design, an extension of human capabilities through digital technologies. Here, urban mapping tools are seen not as mere passive devices, but as active agents that redefine our engagement with urban spaces. They extend our capabilities (McLuhan, 1964), allowing us to perceive, comprehend, and interact with cities in novel ways, thus making urban environments more interactive and immersive.

In this research we understand digital technologies not as singular media, but as part of 'media ecologies' (Taffel, 2016). Media ecology theory investigates the impact of media environments on human perception, cognition, and emotion. Applying this framework to urban contexts, we start to see digital technologies not just as functional tools, but as vital components interwoven into the urban infrastructure, merging seamlessly with the city's physical elements. This perspective unveils the urban landscape as a symbiotic ecosystem where digital and physical elements coexist and influence each other. The integration of hardware and software into urban infrastructure enables a more nuanced understanding of urban experiences and spaces.

Therefore, the Citographer toolkit, does not just collect or visualize data in isolation. Instead, its functionality is intrinsically linked to the presence and participation of a researcher or observer. This person's role is crucial - they do not merely accompany the tool or the other way around, but actively interact with it, contextualizing the data in relation to the immediate environment and its unique characteristics. This approach challenges the traditional, often oversaturated methods of data collection, advocating for a more sensory-rich understanding of our surroundings. The tools' dependency on human interaction underscores the importance of combining our senses with technological extensions. It suggests that augmenting our perception of urban spaces with additional sensory data, like noise levels or telecommunication signals, should enrich, not simply replicate, our understanding of these environments.

In this context, the Citographer toolkit, equipped with IoT sensors, emerges as a distinct element within the media ecological infrastructure. However, it goes beyond mere integration and it is not designed to blend seamlessly with its surroundings in terms of hardware and software. The toolkit is noticeable, challenging the norm of invisibility and lack of transparency of media ecology in urban environments. This approach encourages public engagement and awareness, prompting a more conscious interaction with the technology and its role in public spaces.

Conclusion

The final paper will delve into the technical aspects of the Citographer toolkit, showcasing the initial prototypes and discussing the decisions behind their design. It will shed light on how tools can facilitate a nuanced understanding of urban interactions at a local scale, rethinking the conventional methods of urban studies. Ultimately, this paper aims not only to introduce the toolkit but also to inspire a transformative shift in the approach to spatial design within the field of architecture. It advocates for an exploratory methodology that transcends traditional disciplinary boundaries, fostering new perspectives and insights into the living and designing of cities.

References

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- McLuhan, M. (1964). *Understanding Media: The Extensions of Man*. McGraw-Hill.
- Taffel, S. (2016). *Digital Media Ecologies: Entanglements of Content, Code and Hardware*. *Digital Culture & Society*, 2(1), 7-24.

The Role of Experimentation

In the evolving practice of 'Citography', experimentation serves as a foundation for exploring the impact of digital technologies in urban settings. It fosters more critical and interdisciplinary approaches, thereby broadening spatial understanding and unlocking new insights in the toolkit's use and design.

Therefore, the role of experimentation can be described as twofold. Firstly, experimentation acts as a critical response to the increasing impacts of digital technologies, delving into both their intended and unintended uses and consequences on inhabiting and designing urban environments. Through experimentation, it becomes more feasible to uncover technological biases, manipulations, and effects on the surroundings. These discoveries are instrumental in designing mapping tools and in the integration of digital technology into urban environments.

Secondly, the role of experimentation is crucial in fostering interdisciplinary dialogue. As 'Citography' bridges fields such as architecture and engineering design, experimentation becomes a common language, enabling the integration of expertise from these diverse domains and shaping future explorations in both disciplines. Through this approach, 'Citography' not only deepens our understanding of urban spaces but also establishes new forms of interdisciplinary collaboration.