



Schematic visual stimuli and in-lab survey

# Restorative Boulevards

**Using artificial ground color painting to promote a restorative walking experience in inner-city arterial streets lacking natural greenery**

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## Project content

While a growing body of literature relates urban green spaces to mental well-being, only a few studies draw attention to urban grey spaces such as streets. Besides reducing motorized traffic and injecting more urban greenery, we hypothesize that there is an untapped potential for restorative effects in re-designing urban walking environment especially the ground interface where interventions can be more flexible, feasible, and economic compared to other interfaces of a walking zone. In 3 user evaluation studies, we use 2D images and 3D environment to combine ground painting design variables (i.e., color and pattern) with psychophysiological data including eye-tracking data. The first user evaluation showed that “artificial” sidewalk ground color, especially green, improved perceived restorativeness and the sense of happiness. The second in-lab user evaluation with a sample size of 116 was done in July and August 2022. The ongoing data analysis will reveal if color and pattern design influence a restorative walking experience. As a result, we aim to contribute to the emerging field of neurourbanism with a new methodology to study urban design to enhance mental health by pairing color design features in an urban environment with physiological data. In addition, the project provides an empirical basis for future urban

healthy street design in Europe.

## Coordination

Urban Design and Planning (UDP)

## Partner

Research Group Neurourbanism, Charité – Universitätsmedizin Berlin

## Duration

2021-2024

## Financial Support

Deutsche Forschungsgemeinschaft (DFG)

## Website

[https://www.architektur.tu-darmstadt.de/urbandesign/forschung\\_udp/boulevards.en.jsp](https://www.architektur.tu-darmstadt.de/urbandesign/forschung_udp/boulevards.en.jsp)

## Publications

Gu, L., Batistatou, A., N. Delevoye-Turrell, Y., Roe, J., & Knöll, M. (2021). Using artificial ground color to promote a restorative sidewalk experience: an experimental study based on manipulated street view images. In: Proceedings of the International Colour Association (AIC) Conference 2021(pp. 709-714). Milan, Italy: AIC.

## Comments