INFLUX: a GLOW installation and large scale naturalistic experiment

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When a lamp switches on, light instantaneously flows into every corner of a room, abolishing darkness along its path. When a large group of people sets itself in motion, they too flow; occupying the once empty space through which they transfer. This flow of crowds—whether of photons or people—is necessarily restricted; influenced, for one, by the edges and surfaces that make up our physical environment. Without such influences, visual perception fails and we would have little guidance in how to direct ourselves. The INFLUX installation at GLOW explores this relation between flows of light and people, and makes GLOW visitors to experience the scientific research of the TU/e Intelligent Lighting Institute (ILI).

The INFLUX installation is being built in and around the ILI Living Light Lab Markthal located in front of the entrance to the MetaForum building. The Markthal is a laboratory located not somewhere deep inside the buildings of the university but in a public space used by people in their everyday life; whether students and staff transferring from one building to another, or attendees of large scale events such as the Hajraa Festival or the opening of the academic year. The Markthal Living Light Lab is a playground and ecosystem in support of scientific research, education, and demonstration in such domains as innovative smart-lighting services, internet-of-things concepts and infrastructures, and the effects of light on human behaviour and experience. One research focus is on applications for crowd management, and the effects of light on crowd behaviour. With the TU/e campus being part of the route this year, GLOW and its prospected 700.000 visitors provide an excellent opportunity, not only for letting the public experience the research of ILI, but also for conducting a large scale naturalistic experiment on the effects light on crowd flows—which, as far as we know, is unique in both its kind and scale.

INFLUX—which means flow of crowds but also influence—makes use of the Markthal research infrastructure, including its grid of twelve overhead Microsoft Kinect™ sensors, and the innovative technology for pedestrian tracking developed by dr. Corbetta and prof. Toschi to study crowd dynamics from high statistics experimental data. At INFLUX such technology measures changes

in the flow of GLOW visitors while subjected to various dynamic lighting scenarios. After passing underneath the Kinect™ sensors, visitors will be presented with a visualization of the measured flow data to experience for themselves how light may possibly have affected their motion.

INFLUX is a scientific and technological challenge, requiring the automatic analysis of high density pedestrian dynamics whose imaging data, that will hit the Terabyte during the GLOW week, need to be processed and accommodated in real-time. INFLUX thus is an excellent example of the Living Lab research of ILI which typically involves activities that cross multiple disciplines in support of society-relevant and high quality scientific, technological, and psychological research.

INFLUX is created by TU/e students Sam van Gaal, David van Gelder de Neufville, Bastiaan van Hout, Joep LeBlanc, Bert Maas, Jasper Meeusen, Daan Meister, and Tom van Rooij, Pinake Kumar, Colin Lambrechts, with supervision from Studio Philip Ross, Antal Haans (TU/e ILI), Alessandro Corbetta and Federico Toschi (TU/e TN and W&I), and with support by Aart van der Spank (TU/e HTI) and Mansveld Expotech.