Assessment of Building Performance from the Standpoint of Elderly and Disabled Persons Using Neural Computation.

Keywords: Building performance assessment, Ageing, Disability, Neural computation.

Architectural Engineering + Technology Chair of Design Informatics

Area of Research: Computation & Performance

Research Summary: Assessment of the performance of a building from the view point of its suitability for elderly and disabled is a complex matter, because it concerns not only measurements of detailed properties of a building, such as the width of doors, or the height of door steps, but it also involves psychological assessments in terms of security, safety, privacy, visual comfort etc. In order to deal with this complexity, assessment of experts, as it is conventionally exercised, without support by means of appropriate computational means is insufficient. Ageing and disability as used in this context refer to all forms of impairments limiting the functioning of both physical and mental attributes of human, that make the daily use and interaction with the built environment challenging. Developing a computational model for the precision assessment of the performance of institutional and public buildings is the objective of this research. The performance assessment concerns particularly the degree of suitability of a building for usage by elderly or disabled people. The result from the model being pursued will be an understanding as to the relative importance among the building features taking their simultaneous interrelation into account for the satisfaction of the demands of elderly and disabled.

Research Methodology: The methodology employed for this purpose, Neural Computation, is from the domain of computational intelligence, because it is uniquely able to deal with the complexity of the performance being assessed, namely the methodology emulates the ability of human to establish appropriate abstractions despite abundant information that contains many non-linear interrelations among multiple detailed attributes.

Zubairu Tijjani Onuvajor
PhD started in: 2011
M.Sc. Construction Technology, University of Jos, Nigeria 2010
B.Sc. Building, ABU, Zaria, Nigeria 2002
Promoter(s): Prof.Dr.Ir Sevil Sariyildiz
Daily Supervisor(s): Dr. Michael Bittermann
Email: t.o.zubairu@tudelft.nl
Phone: +31650458370

Main Question: How can assessments on building performance from standpoint of elderly and disabled be brought into computational form, in the face of the immense complexity of the interaction between people and their built environment?

Deliverables A Decision Support Model for an understanding as to the relative importance among the building features taking their simultaneous interrelation into account for the satisfaction of the demands of elderly and disabled via Neural Decision Support Model

Link(s): [http://toi.bk.tudelft.nl/](http://toi.bk.tudelft.nl/)
Updated: October 19, 2013