

A Theory of Space Based on the Notion of Convexity

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Early IT with its huge and heavy computers has been very “static”. By becoming smaller, computers also became movable and mobile. Furthermore, shortly after the invention of “calculating machines”, robotics emerged with its machines which — besides their calculatory abilities — also have the power to move themselves, other things, or both.

Movement is change of position in space. Hence moving device should be able to relate themselves to space. They must know “where they are” and “where to go”. Since it has always been a research strategy in computer science to look “how humans do it”, an obvious way to approach the problem of a proper representation of space for IT devices is to look upon the concepts and procedures humans use in order capture the spatial aspects of their environment.

In my talk, I shall concentrate on one such concept, namely convexity and will show what role this concept plays (or can play) in a geometry for both humans and machines.