Abstract. Most spatial problems do not come in numbers. The most common approaches to spatial problem solving require a transformation into the language of mathematics to allow left brain hemisphere style computations. People can solve certain spatial problems without transformation to numbers; they are able to imagine spatial patterns and mentally derive solutions to spatial problems; this ability is frequently attributed to right brain hemisphere processing. In my talk, I will present different approaches to spatial problem solving. From a cognitive perspective, a particularly relevant method is to use spatial structures for solving spatial problems. I will call this approach Spatial Computing. Spatial Computing enables us solving problems of a certain type in a particularly efficient way. I will address the question whether the principles underlying Spatial Computing could be principles underlying human spatial processing and whether they can be exploited for the development of ‘spatial computers’; and if so, whether these computers will be restricted to solving spatial problems or whether they may be of more general use.

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