

# CREATIVE MACHINES

AI... Approaching a Digital Revolution...

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## Evolution of the term 'AUTOMATED / ARTIFICIAL / INTELLIGENCE' - Oxford English Dictionary

"Our industry is on a journey towards Automated Intelligence and that, for now, is the AI we are talking about. The interlocking AI, Autonomous Interaction, occurs once we begin Automating Intelligence. It is early days yet, but we need to learn how to walk before we can allow true AI to run our buildings." - Ken Sinclair, 2019

### AUTOMATON

/əˈtɒmət(ə)n/

"Computing. A (real or hypothetical) machine whose responses to all permissible inputs are specified by a set of states and a set of rules for passing from one state to another."

"We are very far from possessing a theory of automata which deserves that name, that is, a properly mathematical-logical theory."

J. Neumann, 1951

### ARTIFICIAL

/ɑːˈtɪʃ(ə)l/

"Of or relating to art or science."

G. Chauliac, 1425

"Of a natural phenomenon: produced by or resulting from human skill or design."

T. Elyot, 1542

"The capacity of computers or other machines to exhibit or simulate intelligent behaviour."

J. McCarthy, 1955

### INTELLIGENCE

/ɪnˈtelɪdʒ(ə)ns/

"A branch of knowledge. Obsolete. rare."

J. Gower, 1393

**Machine Intelligence** - "The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as: visual perception, speech recognition, decision-making, and the translation between languages."

Lexico, 2019

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## RESEARCH QUESTION -

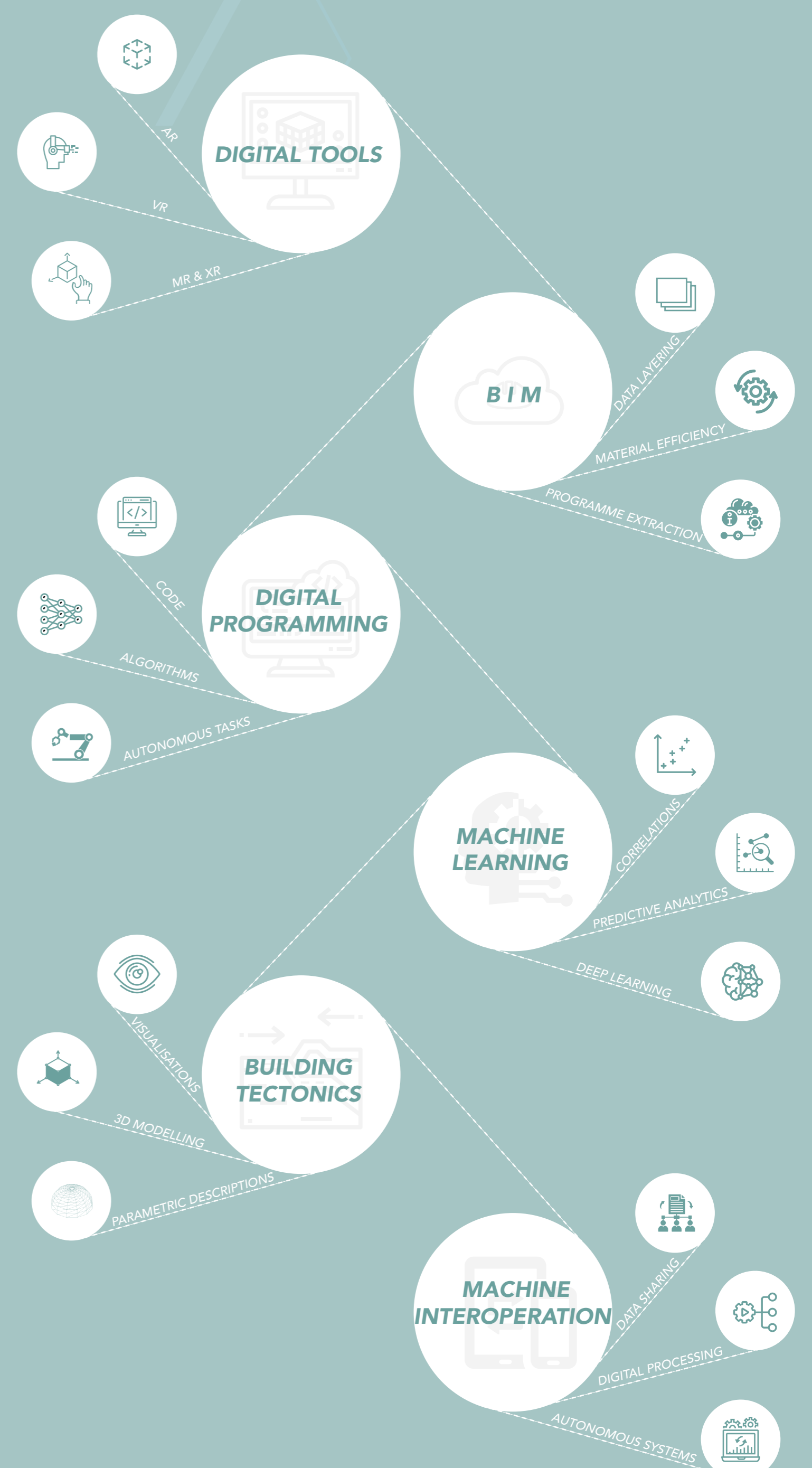
### How can tools in design-technology and AI influence architectural creativity?

## RESEARCH OVERVIEW -

Technology has shifted humans from their highly calculated 'older' traditions of orthogonal thinking... to a more developed machine-age where we can now benefit from utilising machines and their assets to assist in repetitive design tasks in a more precise and automated manner. Through the interoperation of computer systems, we are in a beneficial position to be able to lead machines and Ai to think critically using our data in an intelligent way. So that humans can benefit from the innovations and technological creations derived by our own kind. Architects and designers must find new ways of constructing significance from data to benefit our future existence on earth - assisted by 'Creative Machines'. Developing the intersection of innovative design with cutting-edge technologies will enable humans to respond effectively towards existing global climate-challenges beyond our own native capacities.

## CONTEXTUAL PRECEDENT // DATA ARCHITECTURE -

Software and programming tools used for digital design have enabled architects to expand on their creative building skills; discovering new complexities with the ability to solve some unique design problems on their own. Parametric descriptions can be used to automate user requirements in a generative approach to modelling. This method typically uses inputs of detailed constraints and algorithms allowing for a more rapid workflow; with the ability to generate multiple iterations effortlessly which can be tried and tested. A digital BIM model collects data inputs from various contributors, to then being assembled digitally generating data-rich building models that holds a wealth of building assets and information updated in real-time to all of its platform users. This increase in efficiency, communication, and visualisation, has seen a huge impact on overall projects resulting in a higher level of quality assurance and sustainable outcomes. Interoperability of BIM softwares with intelligent programmes will enhance an architect's on-set ability to visualise and present concepts in the fast-approaching digital turn. However, when designing using digital programming, problems become more difficult to tackle unless they are conceptualised at an early stage. This can be visualised in the early design phase of any project using augmented reality, virtual reality, and powerful 3D analytics of forms with Ai to anticipate these errors. Augmented realities are able to interconnect humans with the conceptual digital realities of the real world by using 3D rendered depiction of the physical environments visualised and supplemented by a digital sensorial reality. Using revolutionary systems like these allow designers to model the physical in the digital.



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## CONCLUSION -

Automated Intelligence should continually grow in popularity once designers realise the automated benefits on offer. Existing and emerging architects should use these digital tools to respond to existing RIBA 2030 net-zero sustainability goals that will benefit our own kind. We are in a creative world that is continually evolving in the way we configure practical sustainable buildings - using digital tools to assist us in doing so.

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## REFERENCES -

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