

Programmable Matter: The Shape of Things to Come

Dr. Hod Lipson



3D Printers – machines that can automatically fabricate arbitrarily-shaped parts, layer by layer, from almost any material – have evolved over the last three decades from limited and expensive prototyping equipment in the hands of few, to small-scale commodity production tools available to almost anyone. It's been broadly recognized that this burgeoning second industrial revolution will transform every aspect of our lives. Where will this technology go next? We can look at the evolution of additive manufacturing technologies' past, present and future as a series of milestone in humans' increasing control over physical matter. This talk will chronicle this past and future journey – First, the unprecedented control over the shape of objects. 3D-printers today can fabricate objects of almost any material – from nylon to glass, from chocolate to titanium – and with any complex geometry. Second, the control over the multi-material composition of matter with unprecedented fidelity. The third and final episode of this journey will be the control over active behavior.

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