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Reading 4 – intelligent materials

Everything can be done digitally nowadays. And more so, nearly anything we make or use can become programmable, more so everyday objects such as wallpapers! This results in having an enormous impact on physical design, from the smallest atoms to the biggest structures in your city. When it comes to building materials designer use, they have become stuck in a finite world of possibilities, where a material has a limitation to what it can be used for, and how it can be manipulated. That is going to change in the near and not so far future. Materials will become well, programmable, even more so their structure will be rewritten in a microscopic sense. The materials capabilities will be able to be controlled digitally by the user. Scientists, engineers, and designers alike, have been researching at a microscopic level the textures of nature to solve human problems. For example, the various array of textures found in nature have different capabilities and strengths, the skin on a shark compared to a leaf's texture, both have strong patterns and shapes that are greatly used in our technologies of intelligent materials. Such as material spray for hospitals and navy ships to deter bacteria forming colonies, and plant based textures which get rid of water and dirt by its intricate hydrophobic texture shaped leaves and using this discovery of nature for paints. One of the difficult downside to these microscopic technologies is the maintenance, as these are delicate and such small features that keeping up their potential by cleaning them could harm their structures. In order to produce these microscopic textured technologies, the innovation of production methods must evolve rapidly, which is happening thankfully. By creating rapid and high-resolution production manufacturing, and the possibilities to further research and test out these textures is closer to being a solid solution for human problems. The next step 3D printing, which is becoming refined in biological printing as much as it is with plastics. The possibilities are endless if one can find a solution to incorporate a wide variety of materials living or conductive or malleable or organic, or solid synthetic plastics, the list

goes on. But printing on a nanoscale could prove innovative in the world of creating natural look like textures. Finally, the possibilities with printing and studying organic and biological textures found in nature can bring exciting paths to creating dynamic computer control of physical materials at such a microscopic scale. What this means for designers, instead of being controlled and constrained by materials around us, we will be able to define the materials that surround us. As said by the reading, this could be the dawn of the intelligent materials age.