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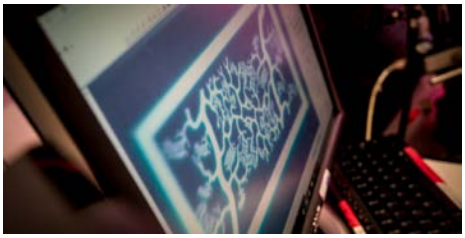

3D Printing Functional Blood Vessels

Nanoengineers at UC San Diego have 3D printed a biomimetic blood vessel network. The new work addresses one of the biggest challenges in tissue engineering: creating lifelike tissues and organs with functioning vasculature — networks of blood vessels that can transport blood, nutrients, waste and other biological materials. The team, led by Jacobs School of Engineering professor Shaochen Chen, printed and cultured several blood vessel networks in vitro, then grafted the resulting tissues into skin wounds in mice. After two weeks, the implants had successfully grown into and merged with the host blood vessel network, allowing blood to circulate normally. Developing networks with additional functions, such as nutrient transport, is one next step.

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Visualizing the Future of Surgery

Before Dr. Sonia Ramamoorthy, the chief of colon and rectal surgery at UC San Diego Health, took a scalpel to “quantified self” pioneer Larry Smarr, she first took a virtual tour of his large intestine. The dramatic, data-driven computer models of Smarr’s abdomen and a□ected or-