

Seminar



The DSN-I Seminar Series is hosted by the Device Science and Nanofabrication Initiative. DSN-I Seminars target researchers in micro and nanofabrication technologies or devices, with the goal of strengthening the user community of the new Scott Hall nanofabrication facility and other shared infrastructure.

The 4th Industrial Revolution

Sanjay Natarajan

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Seminar abstract

For the past 40 years, the phenomenon known as Moore's Law has brought us some amazing technology today, such as self-driving cars, a supercomputer in every pocket, and access to the world's knowledge just a few keystrokes away. If, 25 years ago, someone told you all of these would be possible, many of you would have labeled them as crazy. And yet here we are.

Unfortunately Moore's Law is dying. We don't know yet whether it's with a whimper or a bang, but all signs point to dying nonetheless. Which begs the important question, "when Moore's Law dies, what technology revolution will replace it"?

That is the topic of this talk. We will try to shine a light another 25 years out and talk about some emerging technologies which look as crazy today as self-driving cars did 25 years ago, but which could in fact be keys to the next technological revolution.

One of these emerging technologies is the field of man/machine interface. This field has been around for a while, but in many ways is still in its infancy. Forget about keyboards and mice as your interface to the computer. Forget about talking to Siri. In 25 years, the technology will exist so that you can simply think to your computer.

Another emerging technology is the field of 3D printing, particularly 3D Bioprinting. In 25 years, the technology will exist to print usable tissues and organs, incorporating your individual DNA information and your own stem cells. Printed body parts will be part of our future.

These ideas seem crazy today, just as other ideas did 25 years ago. They raise a host of ethical issues and there is a lot of work to be done to make these a reality. But many of the fundamental barriers to making these a reality have already been overcome.

Speaker bio

Sanjay Natarajan received his BS, MS, and PhD degrees from Carnegie Mellon University, all in Electrical and Computer Engineering. After graduating from CMU, he spent the next 22 years in Intel's Technology Development organization. Most recently, as a Vice President in Intel's Technology and Manufacturing Group, he led the development of Intel's 14nm process technology, today's leading state-of-the-art semiconductor process worldwide. Sanjay left Intel in July 2015 to pursue other interests. He advises semiconductor companies around the world on how to navigate the choppy waters of the semiconductor industry and the next decade of Moore's Law. In addition, as a Professor at Portland State University, he is researching emerging technology options for well past the Moore's Law Era.