Electrical & Computer ENGINEERING

Department Lecture Series

When Moore met Feynman: Ultra-dense data storage and extreme parallelism with electronic-molecular systems

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Thursday, April 11th 12:00pm HH 1107

Abstract:
Sustaining Moore's law is an increasingly challenging proposition. This talk will cover an alternative approach: going directly to the molecular level, as suggested by Feynman in his famous lecture, "There's Plenty of Room at the Bottom." Although we have yet to achieve scalable, general-purpose molecular computation, there are areas of IT in which a molecular approach shows growing promise.

In this talk, I will explain how molecules, specifically synthetic DNA, can store digital data and perform certain types of special-purpose computation by leveraging tools already developed by the biotechnology industry. I will also discuss the architectural implications of molecular storage and processing systems and advocate for hybrid electronic-molecular systems as potential solutions to difficult computational problems, such as large-scale similarity search.

Bio:
Karin Strauss is a Principal Researcher at Microsoft Corporation and an Affiliate Professor at the University of Washington. She co-leads the Molecular Information System Laboratory with Luis Ceze, working on using molecules, currently DNA, to benefit the IT industry. Her background is in computer architecture, systems, and most recently biology. Her research interests include emerging storage technologies, scaling of computation and storage, and special-purpose accelerators. Selected as one of the "100 Most Creative People in Business in 2016" by Fast Company Magazine, she got her PhD from the Department of Computer Science at the University of Illinois, Urbana-Champaign in 2007.

(REFRESHMENTS SERVED AT 11:30 AM)

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