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Professor Neil Gershenfeld
Director, MIT Center for Bits and Atoms

FROM BITS TO ATOMS

Co-sponsored by: Mechanical Engineering & the Feddersen Distinguished Speaker Series

SEMINAR //

THURS, OCT. 18

4:30-5:30 p.m.

WALC 1055

-Hiler Theater

Watch online: kaltura.com/tiny/660x8

PANEL //

THURS, OCT. 18

1:30-2:30 p.m.

ARMS, Herman

& Hedly Kurz Atrium

Watch online: kaltura.com/tiny/45y5j

From Bits to Atoms

Abstract//

The digital revolutions in computing and communications have transformed science and society. At their heart is not ones and zeros, but rather an exponential scaling property in the physical resources required to represent a symbol versus the fidelity of decoding it. This same property can hold for fabrication by digitizing not just designs, but also the materials they're constructed from. I will survey the historical parallels among the digitization of communications, computation, and now fabrication, review current work on aligning the representations of hardware and software, and project the implications of a research roadmap leading from one to one trillion fab labs.

Unleashing the Economic Potential of New Technologies through Design & Manufacturing //

The convergence in different technologies such as electronics, programmability, robotics, internet-of-things, computer vision, AI, and automation sets up a global stage for both new innovations and fierce competition. Economists cite the sluggish middle-skill job growth relative to both low and high-skill job growth as an indication of upcoming automation's bigger impact. We will cover this theme in our panel discussion from an economic and social perspective.

Moderator: Karthik Ramani, Donald W. Feddersen Professor of Mechanical Engineering and Electrical and Computer Engineering by courtesy

Panelist: Neil Gershenfeld

Panelist: David Roberts, Chief Innovation Officer, IEDC

Panelist: Todd Murray, President and CEO of Mursix

Biography //

Prof. Neil Gershenfeld is the Director of MIT's Center for Bits and Atoms. His unique laboratory is breaking down boundaries between the digital and physical worlds, from creating molecular quantum computers to virtuosic musical instruments. Technology from his lab has been seen and used in settings including New York's Museum of Modern Art and rural Indian villages, the White House and the World Economic Forum, inner-city community centers and automobile safety systems, Las Vegas shows and Sami herds. He is the author of numerous technical publications, patents, and books including *Designing Reality*, *Fab*, *When Things Start To Think*, *The Nature of Mathematical Modeling*, and *The Physics of Information Technology*, and has been featured in media such as *The New York Times*, *The Economist*, NPR, CNN, and PBS. He is a Fellow of the American Physical Society, has been named one of *Scientific American's* 50 leaders in science and technology, as one of 40 Modern-Day Leonardos by the Museum of Science and Industry, one of *Popular Mechanic's* 25 Makers, has been selected as a CNN/Time/Fortune Principal Voice, and by *Prospect/Foreign Policy* as one of the top 100 public intellectuals. He's been called the intellectual father of the maker movement, founding a global network of over 1000 fab labs that provide widespread access to prototype tools for personal fabrication, and leading the Fab Academy for distributed research and education in the principles and practices of digital fabrication. Dr. Gershenfeld has a BA in Physics with High Honors from Swarthmore College, a Ph.D. in Applied Physics from Cornell University, honorary doctorates from Swarthmore College, Strathclyde University and the University of Antwerp, was a Junior Fellow of the Harvard University Society of Fellows, and a member of the research staff at Bell Labs.