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KEYNOTE

Go Big or Go Home: The First Transatlantic Telegraph Cable and the Birth of Electrical Engineering

Abstract: Electrical engineers are the children of a failure so traumatic that we don't even talk about it. American paper magnate Cyrus West Field wanted to span the Atlantic in the 1850s with a telegraph cable; it was the Victorian era's equivalent of shooting for the moon. Amplifiers would not exist for another half-century, so success would require mastery of a number of complex technical disciplines. Regrettably, the project's technical head was a medical doctor. A British board of inquiry convened to assess the resulting failures noted that the electrical arts lacked even a basic vocabulary to describe the failure. William Thomson was eventually named the new head of the project, and final success followed in 1866. The volt, ohm and ampere were formally defined shortly thereafter and the profession of electrical engineering was born. Thomson -- arguably the first professional electrical engineer -- became Lord Kelvin, and EEs have been busy making mischief ever since.

Bio: Thomas Lee

- Thomas Lee received his degrees from MIT, where he built the world's first CMOS radio for his 1989 thesis. He has been at Stanford since 1994, after working at ADI, Rambus and other companies.
- He's helped design PLLs for several microprocessors (notably AMD's K6-K7-K8 and DEC's StrongARM), and has founded or cofounded several companies, including 3D memory company Matrix Semiconductor, and IoE companies ZeroG Wireless and Ayla Networks.
- He is an IEEE and Packard Foundation Fellow, has won "Best Paper" awards at CICC and ISSCC, was awarded the 2011 Ho-Am Prize in Engineering, as well as an honorary doctorate from the University of Waterloo.
- He is a Director of Xilinx, served as Director of DARPA's Microsystems Technology Office, holds ~60 patents, and has written several textbooks.
- He owns 100-200 oscilloscopes, thousands of vacuum tubes, and kilograms of obsolete semiconductors. *No one, including himself, quite knows why.*