



HUMANITY  
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ROBOTICS  
INITIATIVE



BROWN

## **Ken Goldberg** **University of California Berkeley**

### **“The New Wave in Robot Grasping”**



*Thursday, March 2, 2017*  
*12-1pm*  
*CIT 477 Lubrano Conference Room*

*Abstract:* Despite 50 years of research, robots are still remarkably clumsy. I will present what I see as three "waves" in methodology. The first wave, which is still dominant, uses analytic methods based on screw theory and assumes exact knowledge of pose, shape, and other properties (see the 2016 Handbook of Robotics). The relatively recent Second Wave is purely empirical: purely data driven approaches which learn grasp strategies from many examples using techniques such as reinforcement learning and hyperparametric function approximation (Deep Learning). The "New" wave will be hybrid methods that combine analytic models to bootstrap and tune empirical models, where data and code is exchanged via the Cloud using emerging advances in cloud computing, big data, deep learning, and the internet of things. This talk will present an overview and new results from my lab for applications in home decluttering, warehouse order fulfillment, and robot-assisted surgery.

**Ken Goldberg** is an artist and professor at UC Berkeley. Ken is a pioneer in internet-based robotic telepresence and Cloud-Based Robotics/Automation and has published over 200 peer-reviewed technical papers on algorithms for robotics, automation, and social information filtering; his inventions have been awarded eight US Patents. He is Editor-in-Chief of the IEEE Transactions on Automation Science and Engineering (T-ASE), Co-Founder of the African Robotics Network (AFRON), Co-Founder of the Berkeley Center for New Media (BCNM), Co-Founder and CTO of Hybrid Wisdom Labs, Co-Founder of the Moxie Institute, and Founding Director of UC Berkeley's Art, Technology, and Culture Lecture Series which has hosted over 150 presentations by artists and curators. Ken's artwork has been exhibited at Ars Electronica, ZKM, Centre Pompidou, ICC Biennale, Kwangju Biennale, Artists Space, The Kitchen, and the Whitney Biennial.

Host: Stefanie Tellex/HCRI