From Nature to Fabrication: Designing Responsive Materials at the Confluence of the Born and the Made

Technology, one might claim, is designed to recapitulate biology: as we strive to design physical objects and architecture that are adaptive, responsive and ever evolving, we find ourselves immersed in Nature’s way. Yet, after years of practice in transforming materiality for adaptive physical interfaces, we realize that it is the combination of the two worldviews — both natural and engineering approaches — that generates a method including their best facets: adaptation with speed, transformation with accuracy, growth with control and response with augmented purposes.

This talk begins with reflections on natural materials, on their adaptive and transformable behaviors across scales. Three research projects will be described, each representing different levels of integration between natural and engineering approaches in order to achieve interfaces with a dynamic output of physical materiality.

http://transformingmaterials.com/
http://tangible.media.mit.edu/person/lining-yao/

Lining Yao, interaction and material designer, is a PhD candidate at the Tangible Media Group, MIT Media Lab. Her work lies at the intersection of interaction design, material science, digital fabrication and biological engineering. Her goal is to combine natural and engineering approaches in order to develop physical materials possessing dynamic and tunable properties, such as shape, color, stiffness, texture and density. Such design opportunities are embedded in myriad life experiences: the things we wear, objects that we live with and within, play with, eat or drink.

Lining was recently named Wired 2015 Innovation Fellow, and has presented her work on the stage of Wired UK, the Aspen Idea Festival, Tokyo Designers’ Week and MIT Museum. She has exhibited her work at the Museum of Fine Arts in Boston and at Dubai Design Week. She curated and implemented the bioLogic exhibition for MIT Media Lab 30's anniversary in October, 2015.

In peer-reviewed academic conferences, she has been awarded the Best Paper award (UIST 2013), Nominated Best Demo award (UIST 2013), Best Talk award (CHI 2015) and one paper won an Honorable Mention award (CHI 2015). She has won numerous design awards, including the Core77 Community Choice Prize Winner, Red Dot Award, IF Design Award and iXDA Awards. In addition, she has been collaborating with industrial partners — including New Balance, Toyota, Cisco, Estee Lauder and Colgate — in order to explore the future of wearables, mobility, communication, food and cosmetics.