

## Empire State Opioid Epidemic Innovation Challenge

September 28-30, 2018

Columbia University Fu Foundation School of Engineering and Applied Science



Elizabeth Hillman's research focuses on the development of novel biomedical imaging and microscopy techniques that use light (optics) to capture information about the structure and function of living tissues.

Her research to date has encompassed both the demonstration of new optical techniques and imaging paradigms, as well as studies of fundamental physiology, particularly related to the relationship between blood flow and neuronal activity in the living brain (neurovascular coupling). Hillman's work in this area has contributed new knowledge about the cellular mechanisms and neural underpinnings of the hemodynamic signals detected in functional magnetic resonance imaging (fMRI). Major technological contributions have included the development of dynamic contrast methods for small animal imaging (DyCE), the

application of in-vivo meso-scale 'wide-field optical mapping' (WFOM) to studying neurovascular coupling, and the recent development of swept, confocally-aligned planar excitation (SCAPE) microscopy. Her teaching at Columbia has focused on advanced microscopy, biomedical imaging, and disruptive design and commercialization.

Hillman joined the faculty of Columbia University in 2006. She holds a BSc and MSc in Physics (1998) and a PhD in Medical Physics and Bioengineering (2002) from University College London, London, UK.