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Keynote 3: "Computational microscopy of dynamic samples" by Laura Waller

Computational imaging involves the joint design of imaging system hardware and software, optimizing across the entire pipeline from acquisition to reconstruction. Computers can replace bulky and expensive optics by solving computational inverse problems. This talk will describe end-to-end learning for development of new microscopes and space-time algorithms that use computational imaging to enable 3D fluorescence and phase measurement with high resolution and dynamic samples. Traditional model-based image reconstruction algorithms work in synergy with neural networks to learn both the image reconstruction, the motion maps and the optimized data capture strategy, both for image reconstruction and aberration correction.

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