G. Holzwarth’s lab—Optical Microscopy, Biophysics, and Machine Learning

**Project One**: collaboration with Doug Lyles, Biochemistry

- Observe viral particles in cell
- Track one particle over time
- Analyze track with Machine Learning

**Project Two**: observe chromosomal territories in cells during interphase by polarization-modulated interference microscopy and machine learning

- Chromosomes visible during cell division
- Enhance contrast using modulator
- Use Bayesian estimation methods to connect time sequence of images
- Result will be a 3D image showing the size and shape of all chromosomes through the cell cycle.