

# Clayton Seitz

---

cwseitz@iu.edu  
cwseitz.github.io

## RESEARCH INTERESTS

- Deep learning, Bayesian statistics, information geometry, optimization
- Single molecule localization microscopy, high-throughput microscopies
- Coupling 3D DNA structure and transcriptional dynamics.

## EDUCATION

*Doctor of Philosophy*, Physics

Purdue University, Indianapolis, IN, 2024

Thesis: *Untitled*

*Master of Science*, Biophysics

University of Chicago, Chicago, IL, 2021

Thesis: *Stable cell assembly formation in excitatory-inhibitory neuronal networks*

*Bachelor of Science*, Magna Cum Laude, Physics

Purdue University, Indianapolis, IN, 2019

Minor: Mathematics

*Bachelor of Science*, Magna Cum Laude, Informatics

Luddy School of Informatics, Computing, and Engineering, Indiana University Bloomington, 2019

Concentration: Mathematics

## COMPUTER SKILLS

*Languages & Software*: Python, R, PyTorch, C, Git, LaTeX, Bash, Linux

## EXPERIENCE

*Research Assistant*

2019-2021

Indiana University - Purdue University, Indianapolis, IN

- Develop an image processing software pipeline for high-throughput quantification of images in fluorescence microscopy
- Utilize high performance computing clusters for image segmentation, single particle tracking, and image registration

*Undergraduate Research Assistant*

2019-2020

Indiana University - Purdue University, Indianapolis, IN

- Utilize time-correlated single photon counting (TCSPC) to characterize the sub-Poissonian emission of organic quantum dots dispersed in a thin film of poly-methyl methacrylate (PMMA)
- Design and utilize a 3-color imaging protocol to perform single-molecule imaging of mRNA transcripts in human epithelial kidney and osteosarcoma cells

*Undergraduate Tutor*

2018-2019

Indiana University - Purdue University, Indianapolis, IN

- Tutored undergraduate students in introductory physics courses covering classical mechanics, classical electromagnetism, circuit analysis, and modern physics

<b>AWARDS</b>	<i>NIH Graduate Training Fellowship</i> University of Chicago, Chicago, IL	2020
	<i>Travel Award and Lightning Talk Invitation</i> Physical Sciences in Oncology - Minneapolis, MN	2019
	<i>Hudson and Holland Scholarship for Diversity and Inclusion</i> Indiana University, Bloomington, IN	2013-2017
	<i>Founders Scholar</i> Indiana University, Bloomington, IN	2013-2017
	<i>Cigital Scholarship</i> Indiana University, Bloomington, IN	2016-2017
<b>PUBLICATIONS</b>	Maelle Locatelli <sup>†</sup> , Josh Lawrimore <sup>†</sup> , Hua Lin <sup>†</sup> , Sarvath Sanaullah, <b>Clayton Seitz</b> , Dave Segall, Paul Kefer, Salvador Moreno Naike, Benton Lietz, Rebecca Anderson, Julia Holmes, Chongli Yuan, George Holzwarth, Bloom Kerry, Jing Liu, Keith D Bonin, Pierre-Alexandre Vidi. <i>DNA damage reduces heterogeneity and coherence of chromatin motions</i> . PNAS. 2022	
	Mengdi Zhang, <b>Clayton Seitz</b> , Garrick Chang, Fadil Iqbal, Hua Lin, and Jing Liu <i>A guide for single-particle chromatin tracking in live cell nuclei</i> . Cell Biology International. January 2022.	
	Wenting Wu, Farooq Syed, Edward Simpson, Chih-Chun Lee, Jing Liu, Garrick Chang, Chuanpeng Dong, <b>Clayton Seitz</b> , Decio L. Eizirik, Raghavendra G. Mirmira, Yunlong Liu, Carmella Evans-Molina; <i>Impact of Proinflammatory Cytokines on Alternative Splicing Patterns in Human Islets</i> . Diabetes 1 January 2022; 71 (1): 116–127	
	<b>Clayton Seitz</b> , Hua Lin, Keith Bonin, Pierre-Alexandre Vidi, and Jing Liu. <i>Quantifying the spatiotemporal dynamics of dUTP labeled chromatin during the DNA damage response</i> . Biophysical Society Annual Conference 2020	
	<b>Clayton Seitz</b> , Hua Lin, Keith Bonin, Pierre-Alexandre Vidi, and Jing Liu. <i>Quantifying the spatiotemporal dynamics of dUTP labeled chromatin during the DNA damage response</i> . Physical Sciences in Oncology Annual Conference 2019	
	<b>Clayton Seitz</b> , Andrew Reeser, Fangjia Li, and Jing Liu. <i>Machine learning methods in image based transcriptomics at single molecule resolution</i> . Biophysical Society Annual Conference 2019	