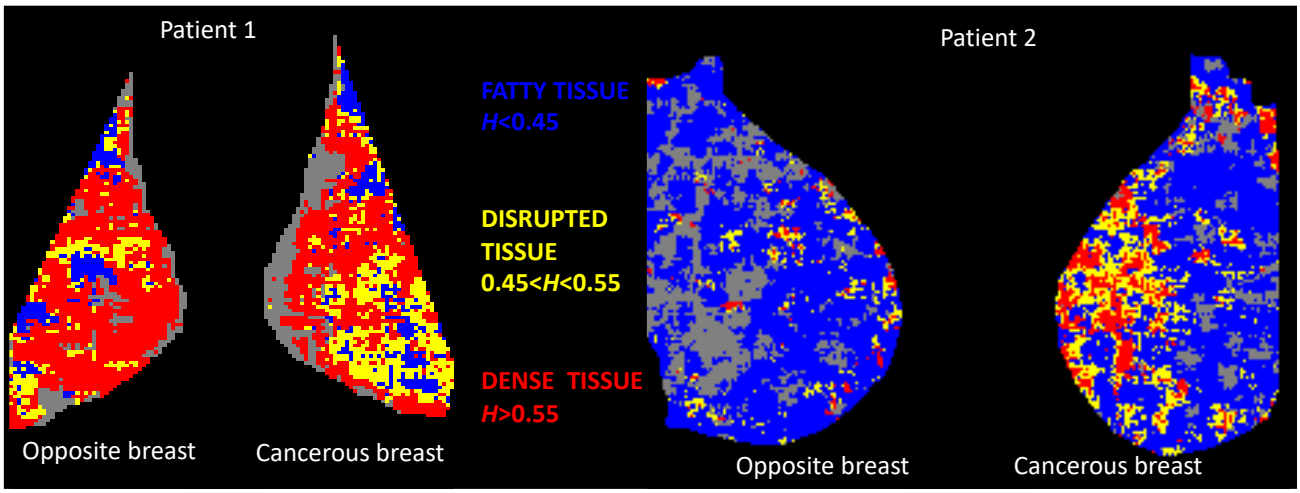
CompuMAINE Lab Internships
2020-2021

The **CompuMAINE** Lab (**Compu**tational **M**odeling, **A**nalysis of **I**mages and **N**umerical **E**xperiments) is looking for student researchers for a computational breast cancer project. Preference will be given to applicants with interests in signal processing and image analysis. Please submit your application via this form. We will begin reviewing applications immediately.

Typical CompuMAINE internships are unpaid. However, for more qualified / experienced students, a recently awarded 3-year grant from the National Cancer Institute will fund a subset of student interns.



Sliding-window analysis of two breast cancer cases showing more disrupted (yellow) tissue in the cancerous breast than the opposite breast. Each pixel represents a 360 x 360-pixel mammogram sub-region colored according to its Hurst exponent (*H*) value.

The CompuMAINE Lab is a computational research lab that explores novel breast cancer early diagnostic methods (which has led to two patents), cell nucleus architecture, regenerative medicine, muscle cell morphogenesis, neuroscience, and astrophysics. Eighty-three percent of the Lab's publications in peer-reviewed journals include undergraduate or graduate student co-authors. Our students have gone on to work / study at Stanford University, Yale University, Brown University, Washington University St. Louis School of Medicine, UCSF, Rensselaer Polytechnic Institute, University College London, University of Manchester, Université de Grenoble, Ohio State University, University of Hawaii, Utah State University, Lockheed Martin Aeronautics, Texas Instruments, and Unum. For more information, please see https://umaine.edu/compumaine/

We were recently awarded a 3-year $418K grant from the National Cancer Institute (start date Sept. 7, 2020). The work is mostly centered on CompuMAINE lab's work on the computational analyses of mammograms, but we also successfully proposed an extension of this work to breast tissue analyses from biopsies, lumpectomies, and mastectomies, thanks to Karissa Tilbury's involvement. Note: Of all institutes at NIH, NCI is one of the most competitive to get funding from. While the funding rate for NIH as a whole is ~21% (substantially lower than NSF's ~28%), the specific mechanism we went through has a funding rate of only 9.9% at NCI. Based on data obtained from UMaine's ORA, this is the first grant to UMaine from NCI in 16 years, only the fourth overall in UMaine's history, and the first ever in the College of Engineering.