

BIOMEDICAL ENGINEERING
COLLEGE OF ENGINEERING AND APPLIED SCIENCE

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

APPLICATION DEADLINE: 03/01/2023

PROJECT TITLE: Ultrasound imaging for therapy guidance

T. Douglas Mast (he/his)
Professor and Graduate Program Director,
Biomedical Engineering
University of Cincinnati
133 UC Bioscience Center, ML 0048-04D
3159 Eden Avenue, Cincinnati, OH 45221
(513) 558-5609
doug.mast@uc.edu

Project Description

The Biomedical Acoustics Laboratory does research on ultrasound imaging for guiding therapy, which includes cancer treatment by heating and radiation, correction of irregular heart rhythms, speech therapy, and rehabilitation of swallowing disorders. We develop and test new ultrasound imaging methods and applications, including echo decorrelation imaging for guiding cancer ablation, motion tracking to characterize vocal tract movements in speech and swallowing, and elastography to measure properties of muscle tissue. Potential UPRISE projects involve performing ultrasound imaging and therapy experiments, analyzing ultrasound signal and image data, and programming in MATLAB, in collaboration with a team of faculty, graduate and undergraduate students.