DEPARTMENT OF BIOMEDICAL ENGINEERING  
COLLEGE OF ENGINEERING AND APPLIED SCIENCE  

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students  

APPLICATION DEADLINE: 04/26/2022  

PROJECT TITLE: Ultrasound image guidance of minimally invasive therapy  

Physical Requirement : Ability to perform general laboratory activities  
Project's Technical Skills Requirement : Desirable skills include programming in MATLAB (C, Python, and microcontroller experience also potentially helpful), CAD design for 3D printing, and experiments with bioinstrumentation or general test and measurement equipment.  

T. Douglas Mast  
Professor of Biomedical Engineering  
3938 Cardiovascular Research Center  
Cincinnati, OH 45267-0586  
(513) 558-5609 tel., (513) 558-6102 fax  
doug.mast@uc.edu  

Project Description  

Research co-op fellowship in a Biomedical Engineering lab located in the Cardiovascular Research Center on UC's medical (East) campus. Our research is on novel ultrasound methods for image-guided therapy. Major projects include: (1) echo decorrelation imaging for real-time guidance and control of thermal ablation in cancer and cardiac therapy and (2) ultrasound detection of tongue motion for biofeedback in speech therapy, as well as characterization of swallowing disorders. Learning opportunities include ultrasound signal and image processing, cross-disciplinary collaboration skills (e.g. collaboration of engineers with clinicians specializing in surgery, radiology, speech-language pathology, and cardiology), and clinical research involving human subjects.