

BIOMEDICAL ENGINEERING
COLLEGE OF ENGINEERING AND APPLIED SCIENCES

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2025

PROJECT TITLE: Frustration-Free Wearable for Post-op Monitoring in Geriatric PopulationsOrlando S. Hoilett, Ph.D.
-----Assistant Professor of Biomedical
Engineering
College of Engineering and Applied Science
University of Cincinnati
-----554 Mantei Center
2901 Woodside Drive
Cincinnati, OH 45219
-----B01 Bioscience Center
3159 Eden Avenue
Cincinnati, OH 45219
-----Email: hoiletos@ucmail.uc.edu
Phone: 513-556-7826
Fax: 513-556-4162**Project Description**

Post-operative monitoring has many difficulties since medical professionals can't actively track their patient's health. Patients who have undergone pancreatic surgery for cancer have a high readmission rate because of the complexity of the surgery. Pancreatic cancer surgery can entail the removal of parts of the small intestines, part of the bile duct, gall bladder, lymph nodes, spleen, parts of the pancreas, and even sometimes the whole pancreas. Patients who have gone through pancreatic cancer surgery are at higher risk of leaking from the reconnection of organs, infections, internal bleeding, and problems digesting food. These high-risk factors are why post-operative monitoring is essential in reducing the chances of readmission by catching issues early. Studies have shown the benefits of wearable devices by predicting the possibility of readmission by monitoring health data such as steps, heart rate, and sleep. Still, they have had difficulty in missing data due to improper adherence, running out of battery, or complications connecting to phones for data storage. Modern-day wearable devices can also be complicated for elderly patients because of their various applications or uses. There are also issues with clarifying FDA-approved settings within certain smartwatches. This research aims to develop a simple, easy-to-use

wearable for frustration-free post-op monitoring of pancreatic cancer patients.