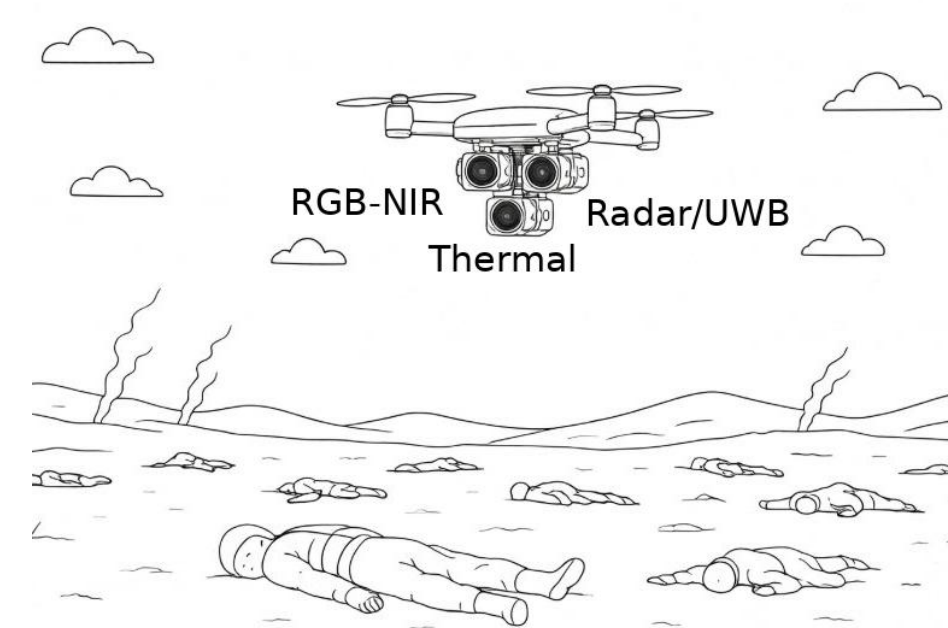


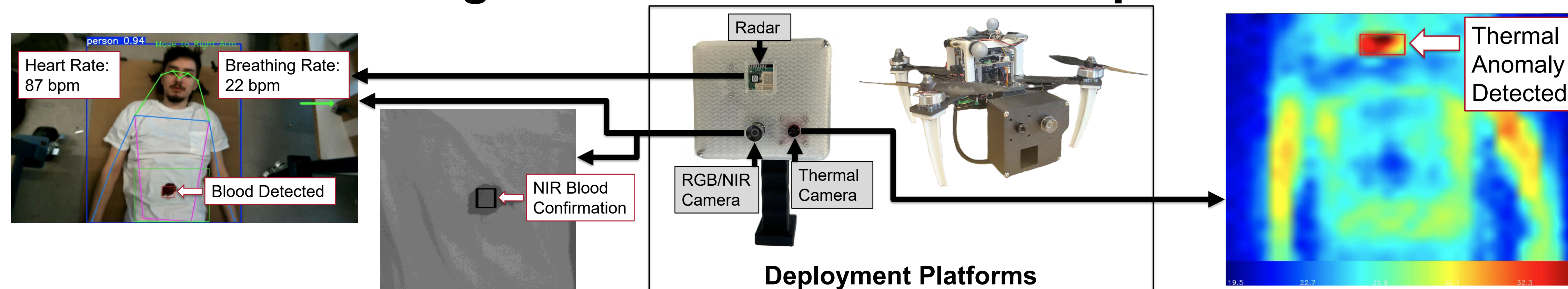
Ian Hagglund (RBE), Caitlin Murphy (RBE & ECE)
 Advisors: Professor Guanrui Li (RBE), Professor Giovanni Pittiglio (RBE)

Motivation

- Reduce preventable deaths
- Provide early patient information
- Support care in constrained settings
- Enable rapid, remote assessment

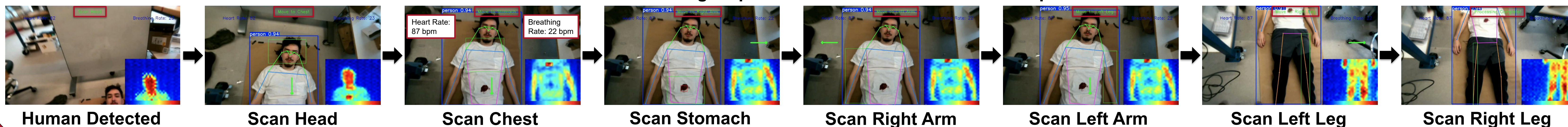


Scanning Devices and Detection Capabilities

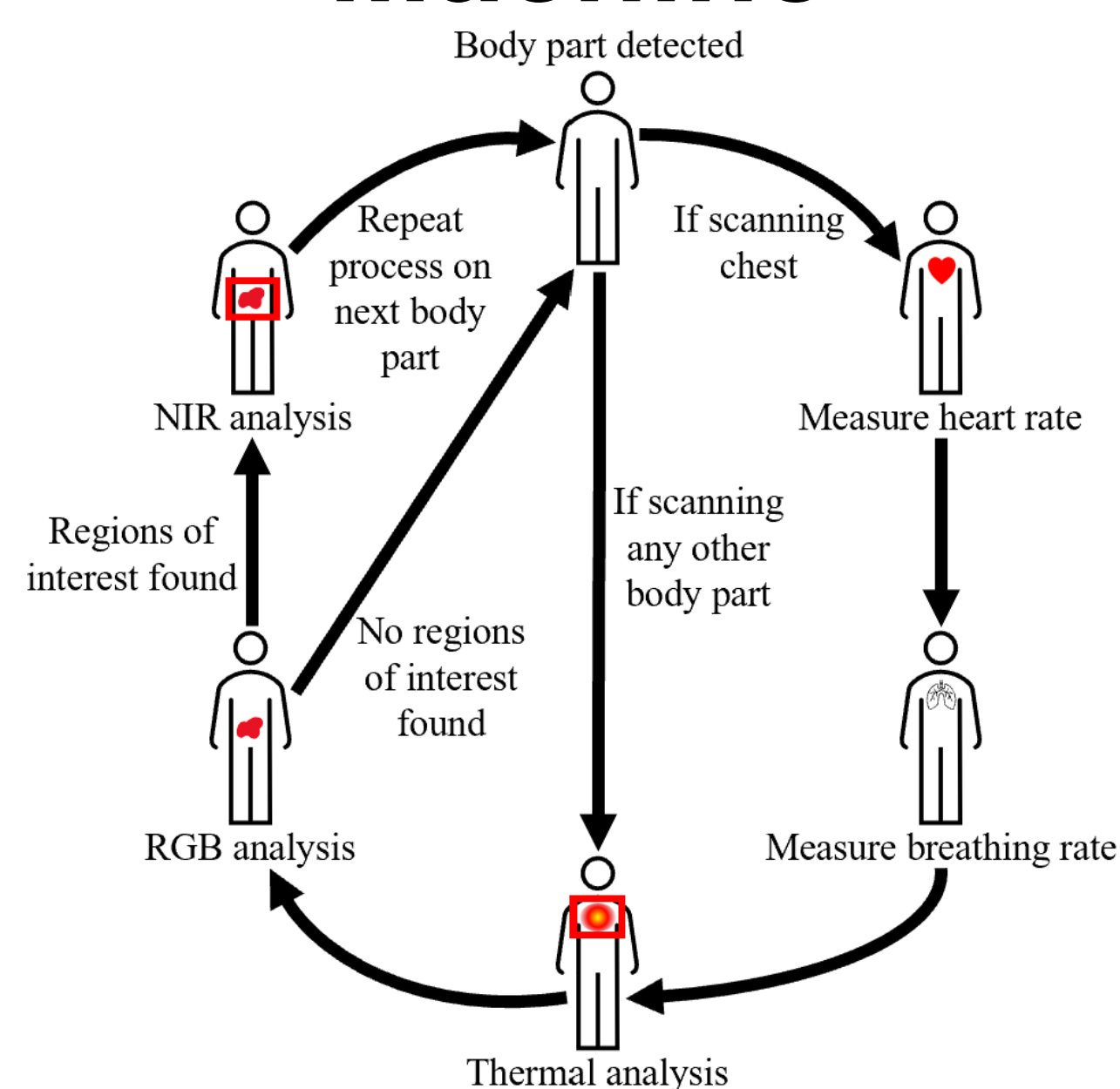


Active Perception Scanning Process

State-driven scanning sequence based on real-time sensor input



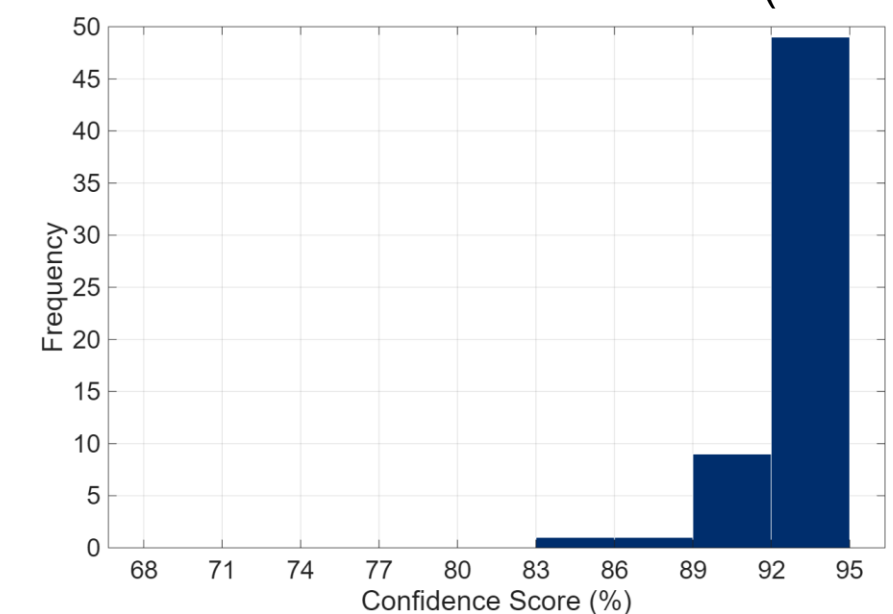
Perception State Machine



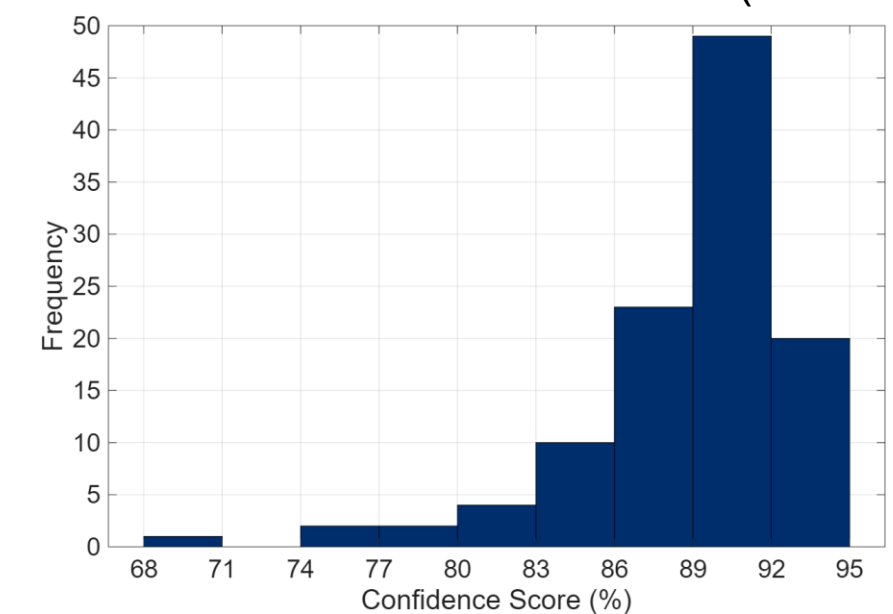
Results

Human Recognition

Human Detection Confidence Scores (Participants)

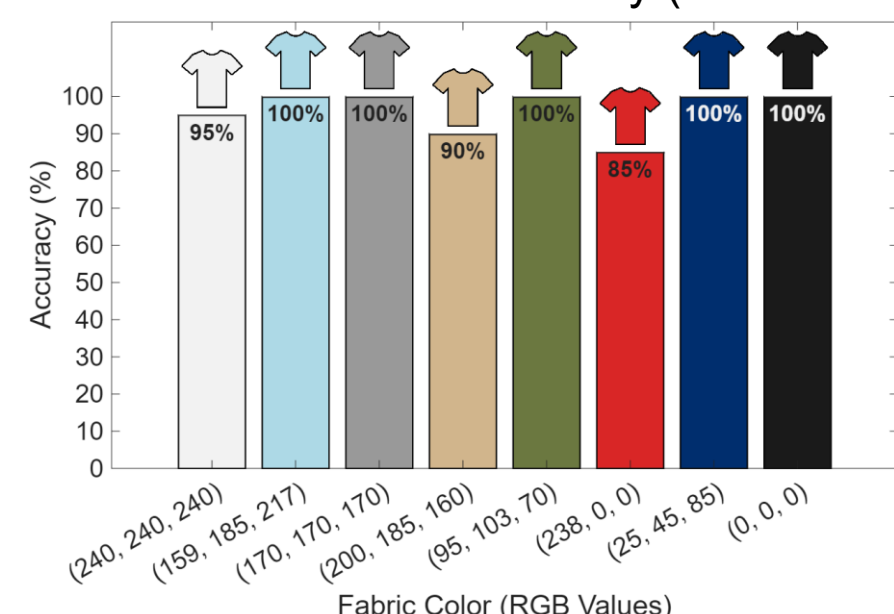


Human Detection Confidence Scores (Online Dataset)



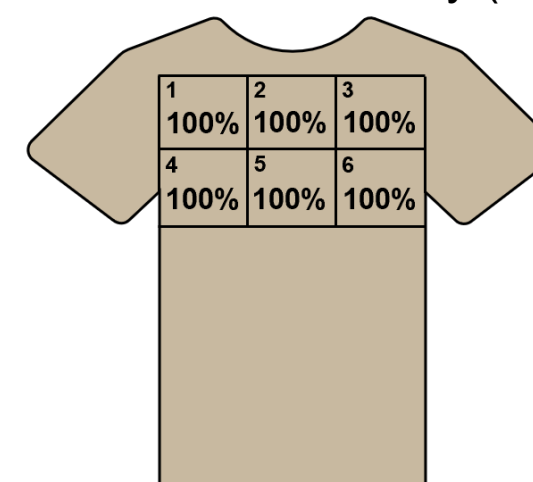
External Wound Detection

External Wound Detection Accuracy (n = 20 trials per color)



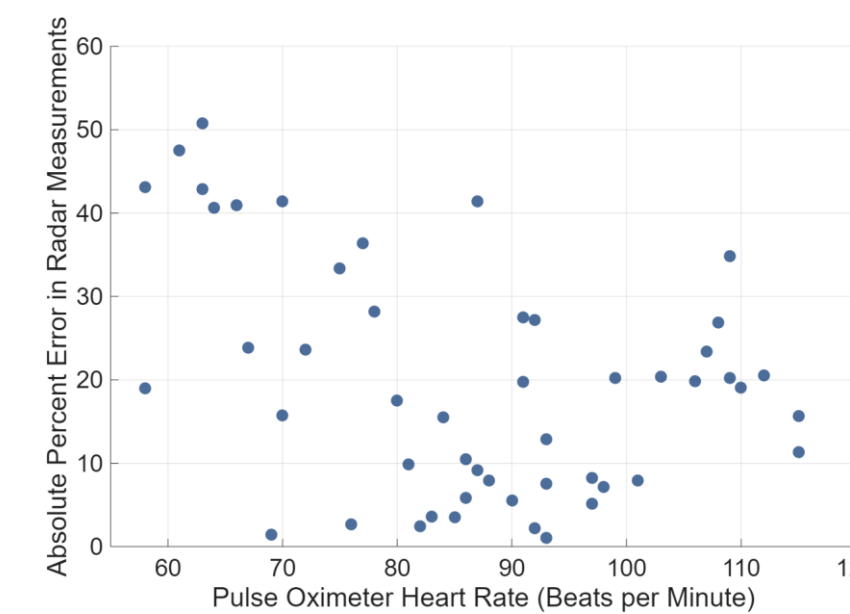
Internal Trauma Detection

Internal Trauma Detection Accuracy (n = 6 trials per area)

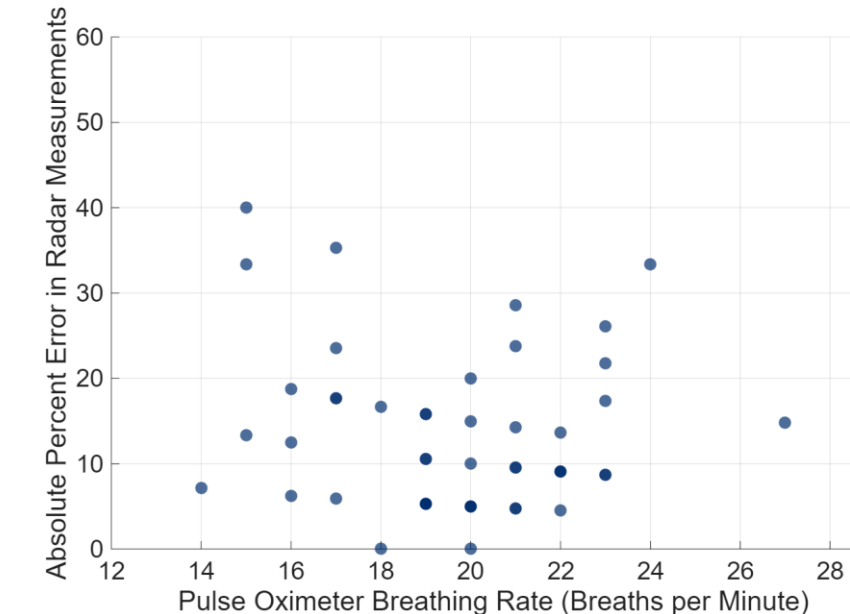


Vital Sign Measurements

Radar Absolute Percent Error vs. Pulse Oximeter Heart Rate



Radar Absolute Percent Error vs. Pulse Oximeter Breathing Rate



Future Work

- Add gas detector and microphone
- Higher-quality thermal camera and radar
- Integrate state machine commands with the drone for autonomous scanning

Lab Websites:

