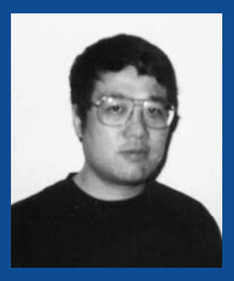
Privacy Technology for Human Imaging

Yang Cai, Carnegie Mellon University, www.cmu.edu/vis



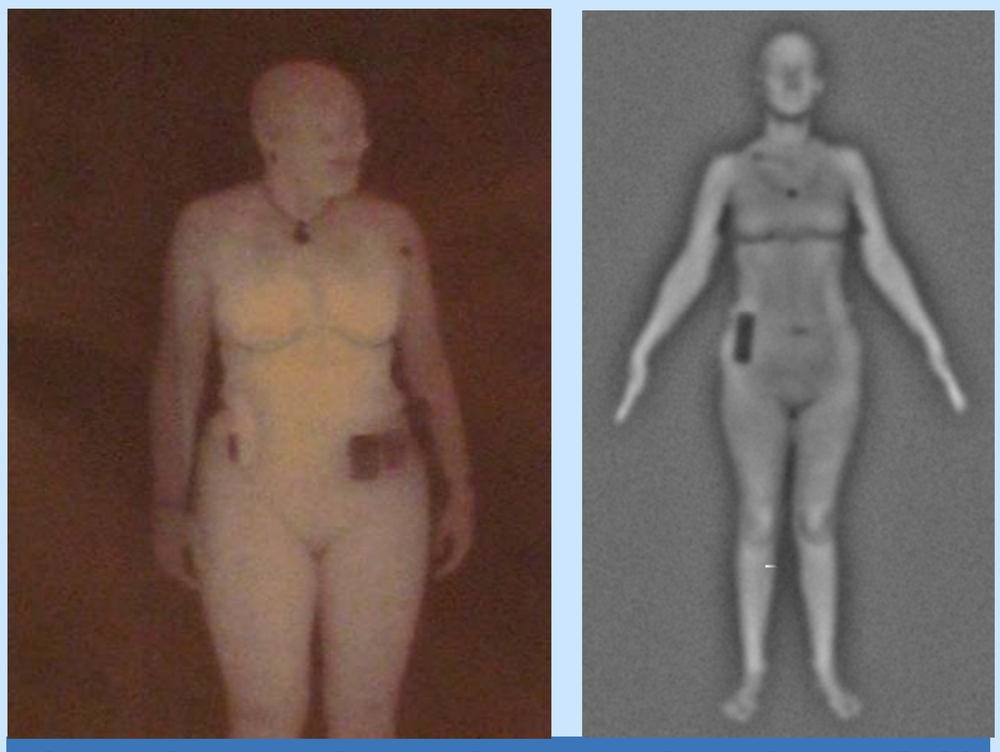
NSF Grant: CT-ER 0716657, Program Manager: David Du

The 3D microwave body scanning security systems are designed to see through the clothes and detect concealed weapons. They also reveal human body details and have raised privacy concerns in public.

Objectives

The team develops a test bed for the privacy-aware imaging. The objectives are:

- **to simulate the scanner data, based on physical properties and anthropological databases,**
- **to deliver robust and fast algorithms for segmenting human bodies and detecting private body parts,**
- **to assess the visual privacy algorithms, based on detection accuracy, privacy and aesthetic measurements.**



The real scaner image from London Airport (left) and the simulated image from this project (right)

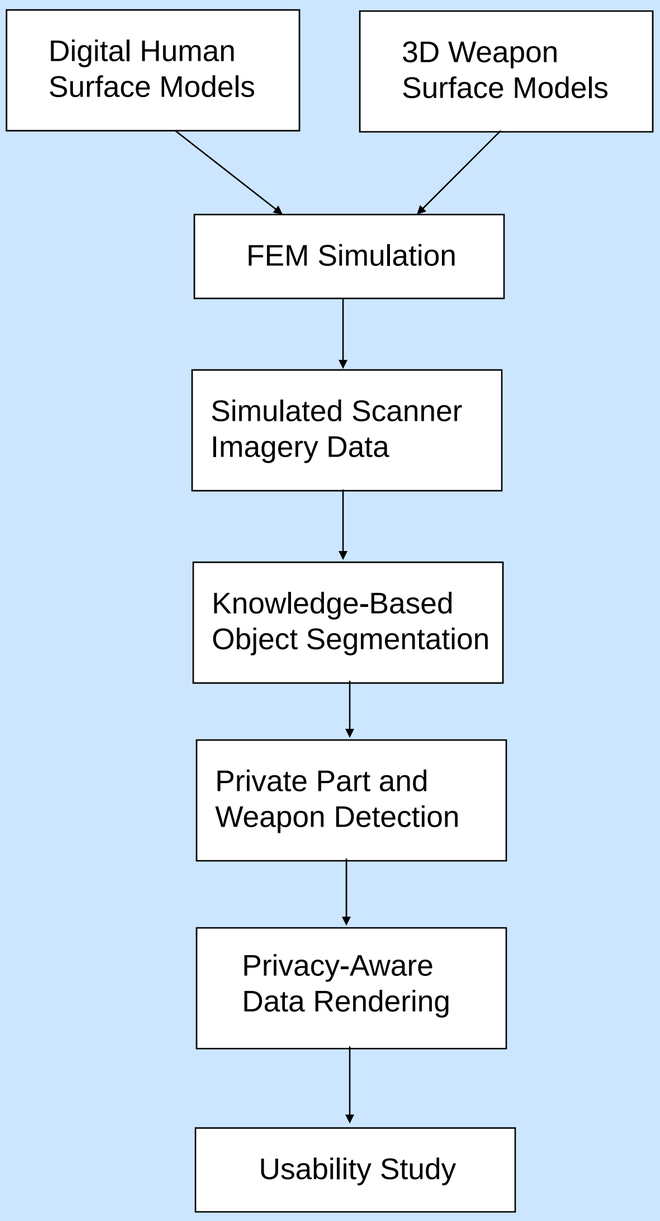
Approach and Impact

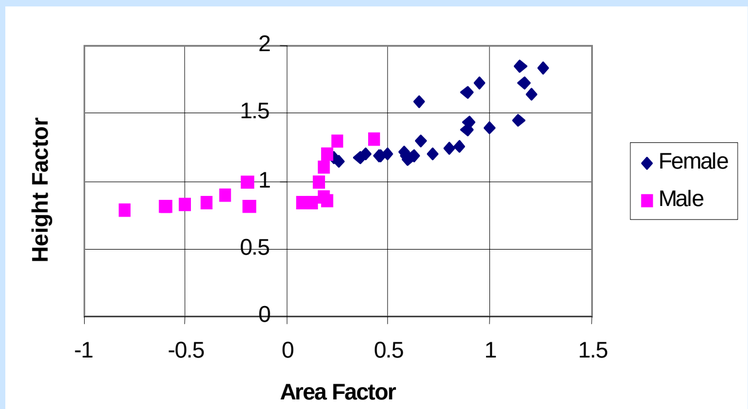
Innovative Approaches:

- Physics-based anthromorphology
- Knowledge-based vision algorithms
- Privacy-aware rendering

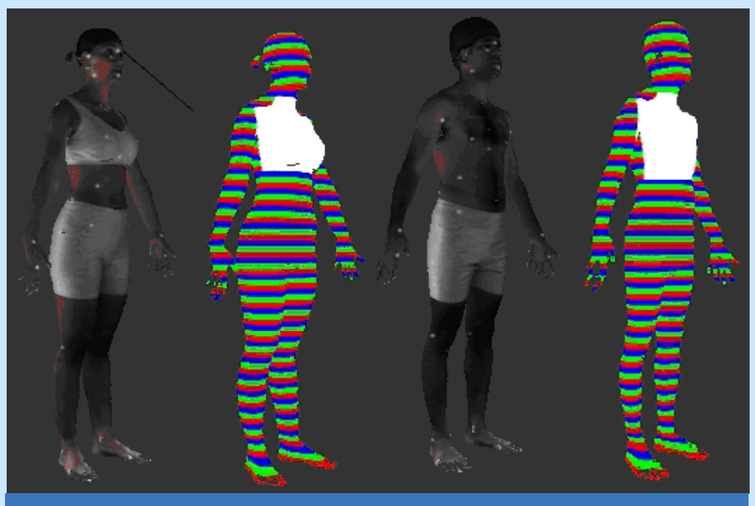
Broader Impacts

- Airport security and privacy
- Medical imaging privacy
- Digital human databases





Classification results (100 samples)



Detected chest area in white color.

National Science Foundation
WHERE DISCOVERIES BEGIN

NSF Cyber Trust Principal Investigators Meeting
March 16-18, 2008
New Haven, CT

CarnegieMellon