



Project 12

Mixed Reality for Biopsy Site Localization

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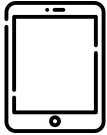
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Project Summary



Problem

Skin biopsies are used by dermatologists to diagnose cutaneous ailments, but site identification can be difficult – leading to site misidentification



Solution

We aim to create a mobile augmented reality application that can provide dermatologists with additional guidance to locate the biopsy site, with an accuracy of 5mm

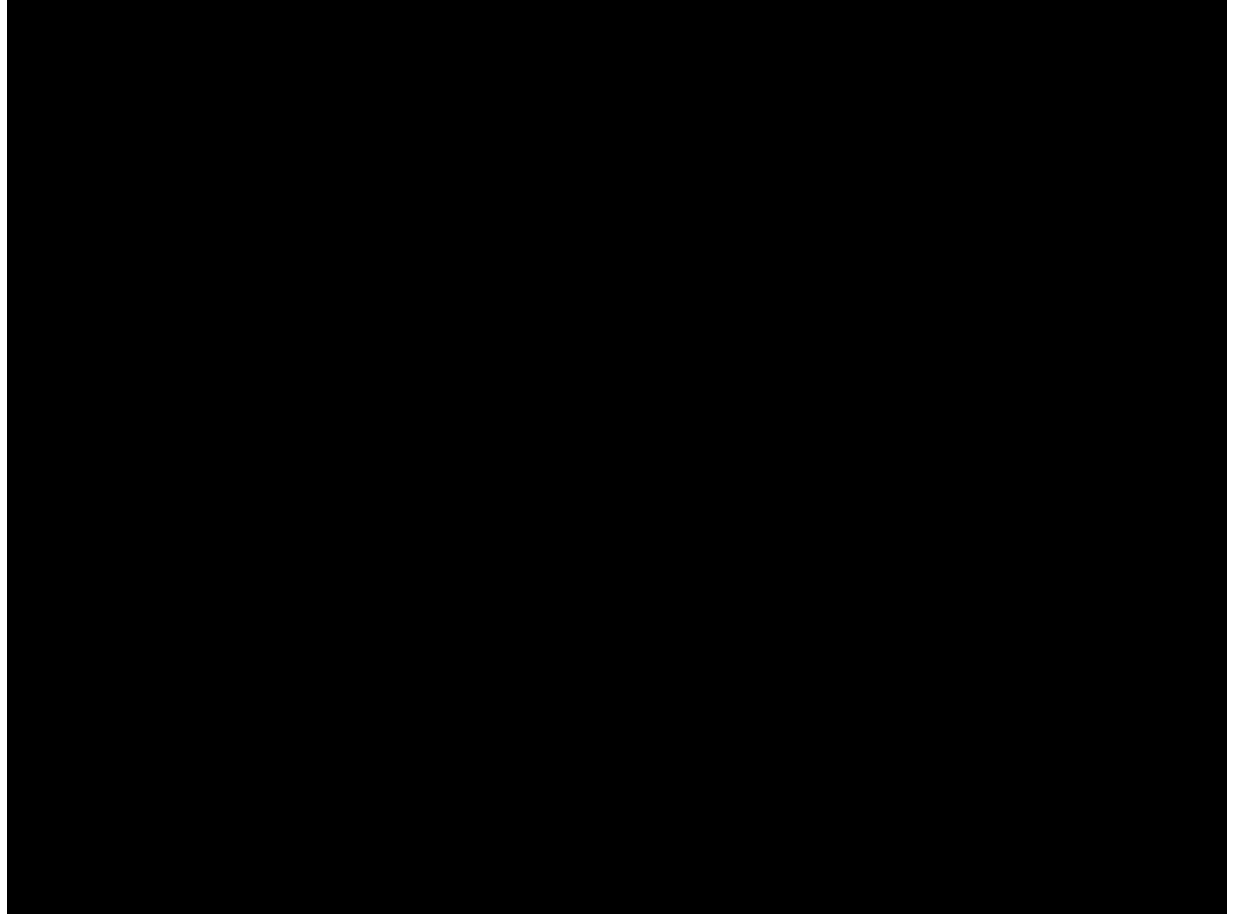


Status

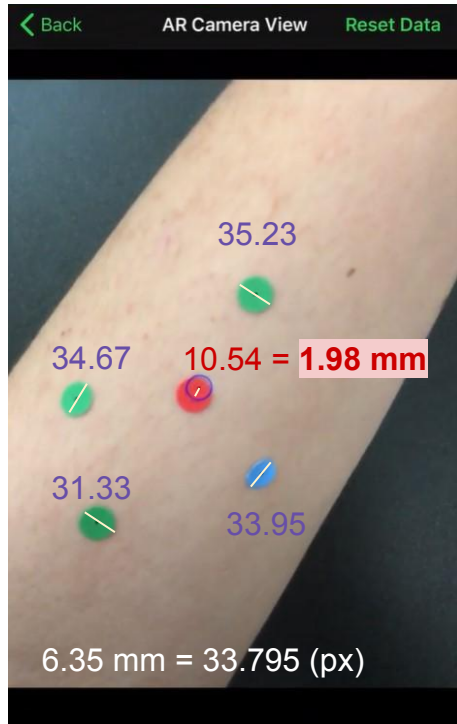
iOS application is functional, and we are working towards app store deployment and further testing



Demo



Error Metrics





Future Work

Deployment/Distribution

- Currently aiming to license the application for deployment on the Apple App Store, particularly with TestFlight for beta testing

Testing

- After deployment with TestFlight, can automate collection of performance data from users. Can collect data on:
 - Registration accuracy
 - Overall accuracy
 - Interpersonal consistency
 - Intrapersonal consistency



Questions?



References

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Appendix Slides

The following slides were cut from the main presentation due to time constraints, but still left in in the case of any relevant questions.

UI Outline

At Biopsy

Take two 2D color photos of biopsy site + surrounding anatomical landmarks
(No change to current procedure)

Pre-Surgery

Import biopsy image from photo library

Place CV tracking marker(s) on patient skin near biopsy site

Use biopsy photo as reference (edge detection overlay) to align mobile camera and take picture

User manually labels biopsy site and anatomical features

Software overlays biopsy site on live camera feed

Functional Flowchart

