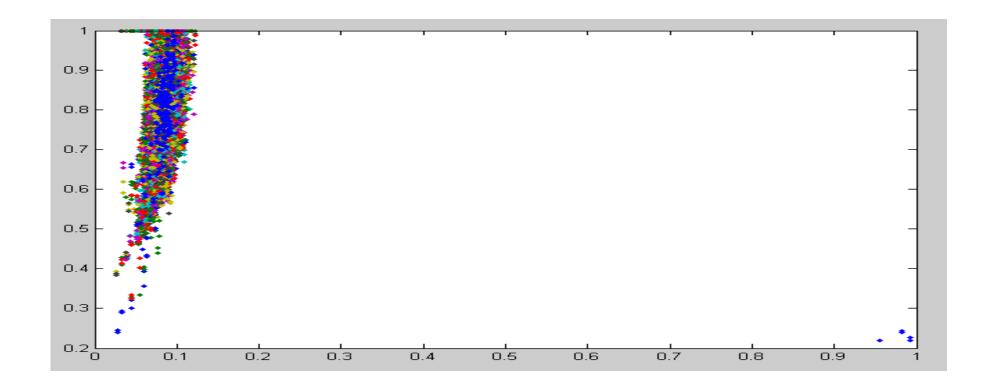# REAL-TIME HUMAN TRACKING
PROJECT PROPOSAL

Benjamin Martin

System Overview

- Develop a real-time human detection and tracking system
  - Implement an efficient eye extraction algorithm
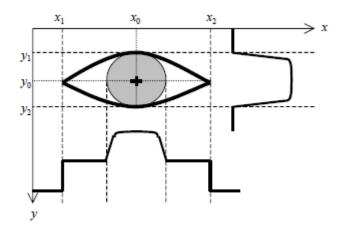 - Create a system to integrate with artwork component

Skin Extraction

- Use the HSV color model
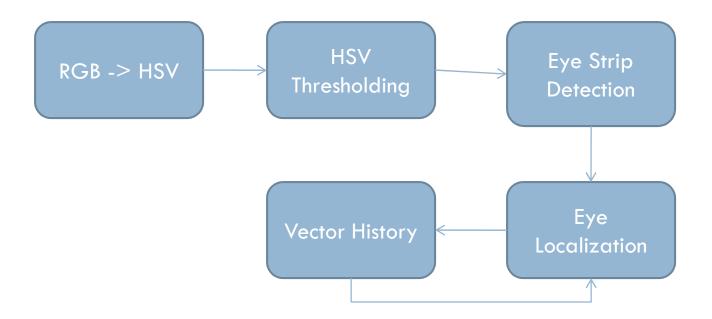   - Provides more lighting-independent detection results

Eye Detection

- Create vertical histogram to detect potential eye regions

- Generate image strip

- Create horizontal histogram to detect eye location

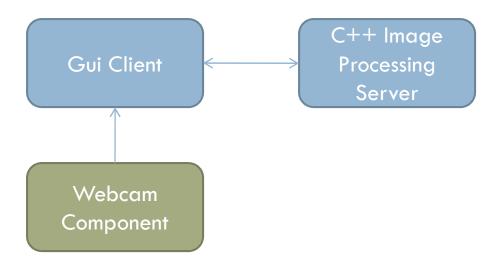# Eye Detection – cont.

- After a lock has been acquired, utilize vector history to reduce computational requirements for future frames

```
RGB -> HSV  →  HSV Thresholding  →  Eye Strip Detection
                                          ↓
Vector History  ←  Eye Localization
```

Software Systems

- Uses internal TCP/IP to allow for processor offloading, potential network usage
- Client sources the webcam due to C++ messiness

```
┌──────────────┐        ┌──────────────┐
│              │        │  C++ Image   │
│  Gui Client  │<------->│ Processing  │
│              │        │    Server    │
└──────────────┘        └──────────────┘
       ↑
┌──────────────┐
│    Webcam    │
│  Component   │
└──────────────┘
```

Bill of Materials

- 2 x Microsoft Lifecam VX-6000 Webcam
- 2 x Projectors – Must have wide-angle lens
- Extension cables –
  - 2 x 50 ft. USB Extender
  - 2 x 50 ft. VGA Extender
- 1 x Projector right-angle box
- 1 x PC with Cygwin, Flex Builder

Questions and Discussion