

AI-r Hockey Rival  
Team Awesome  
Aquajellies



# Our Team

## Puck-detection



Marwin, Marcus, Jonathan,  
Rafi

## Opponent algorithm



Marwin, Linus

## Motor-Axes Control

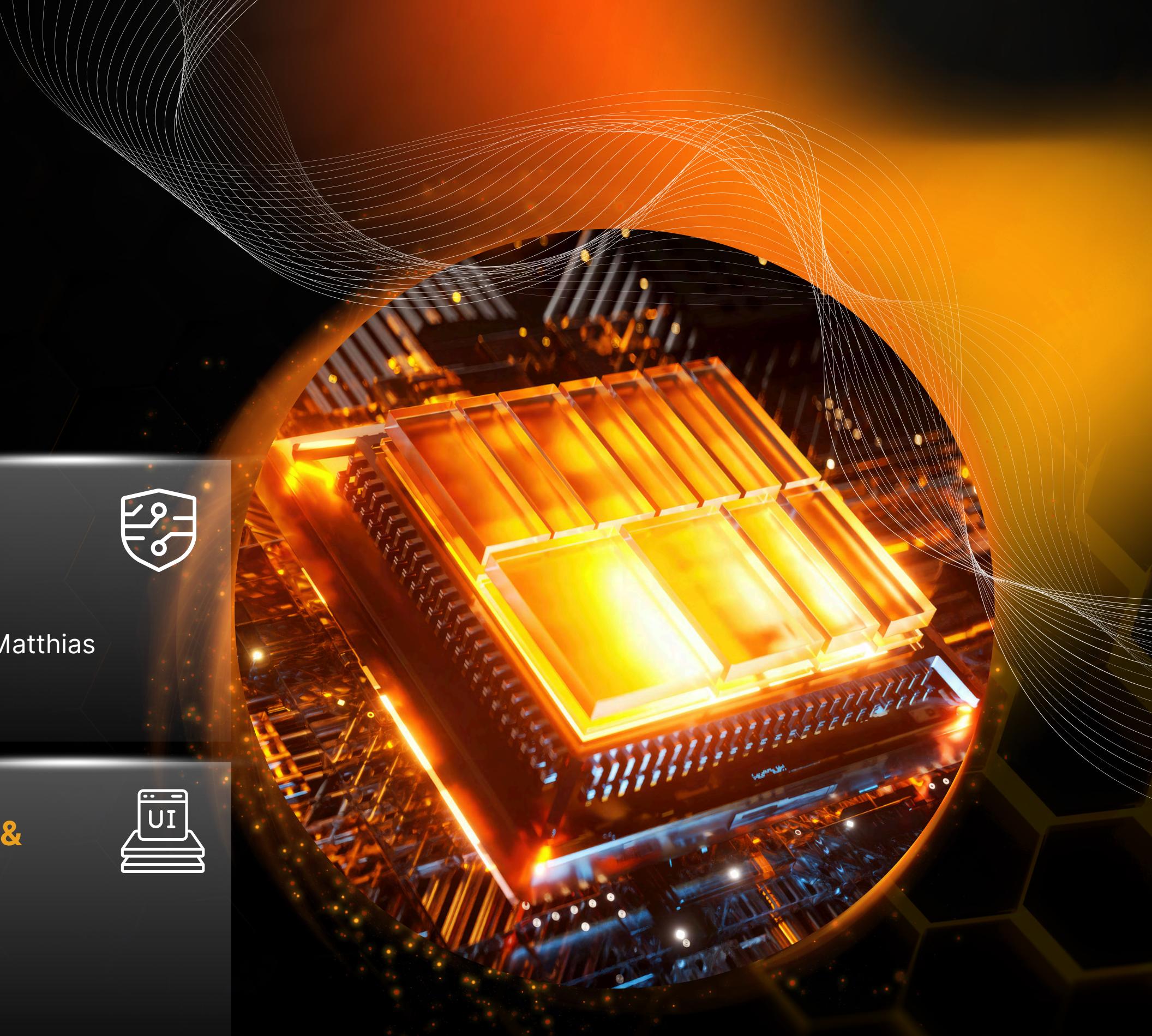


Jonathan, Linus, Matthias

## Visualization & GUI



Rafi, Matthias



# Challenges



Time



Integration



Hardware-  
Communication

# Your opponent canceled – we didn't.

You know it.

- No one has time.
- Your friends are unreliable.
- You're ready to play – but no one's around.



# AI-r Hockey Rival

- Independent
- Better than your last opponent
- Ready 24/7
- No drama, just action



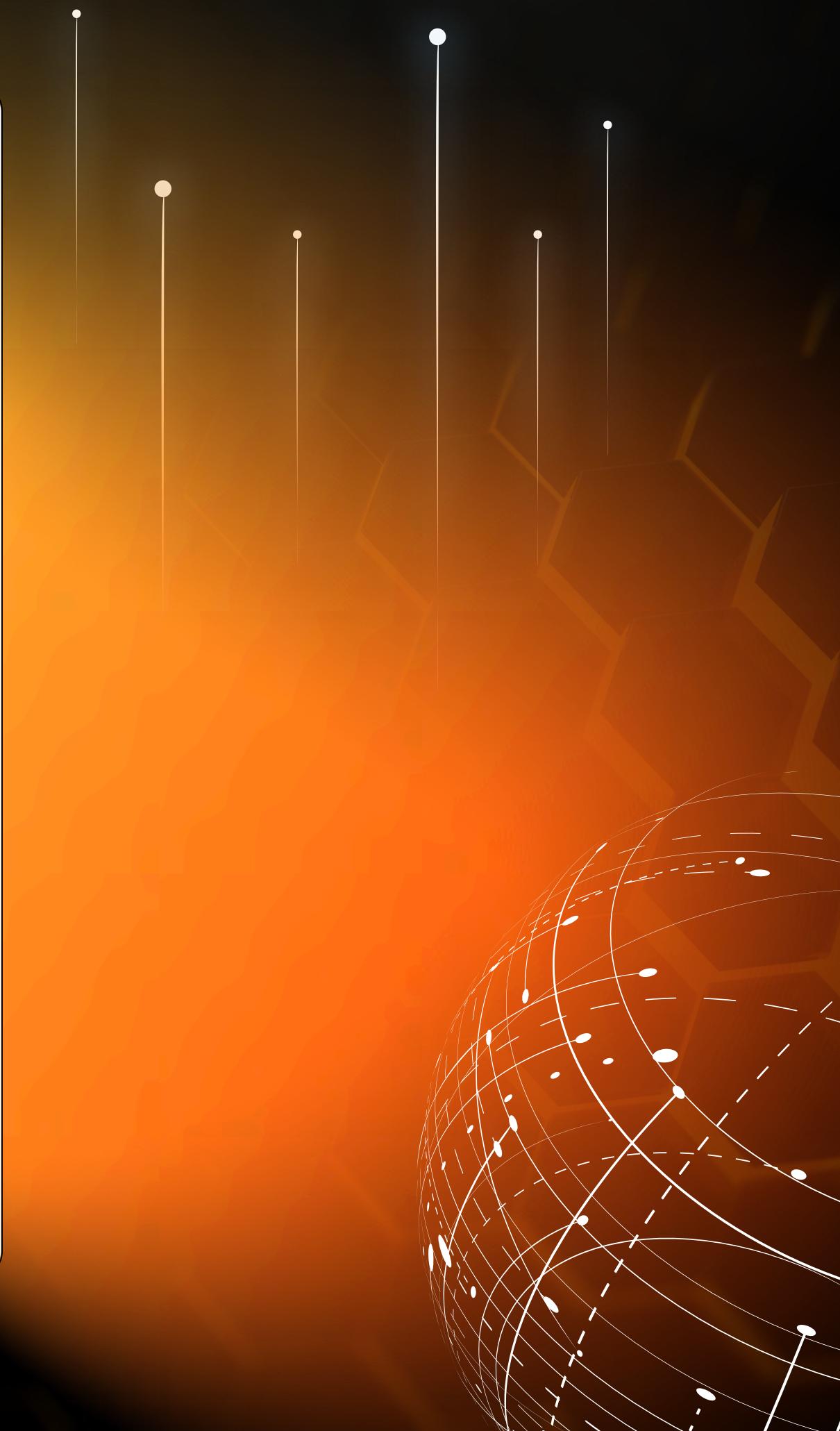
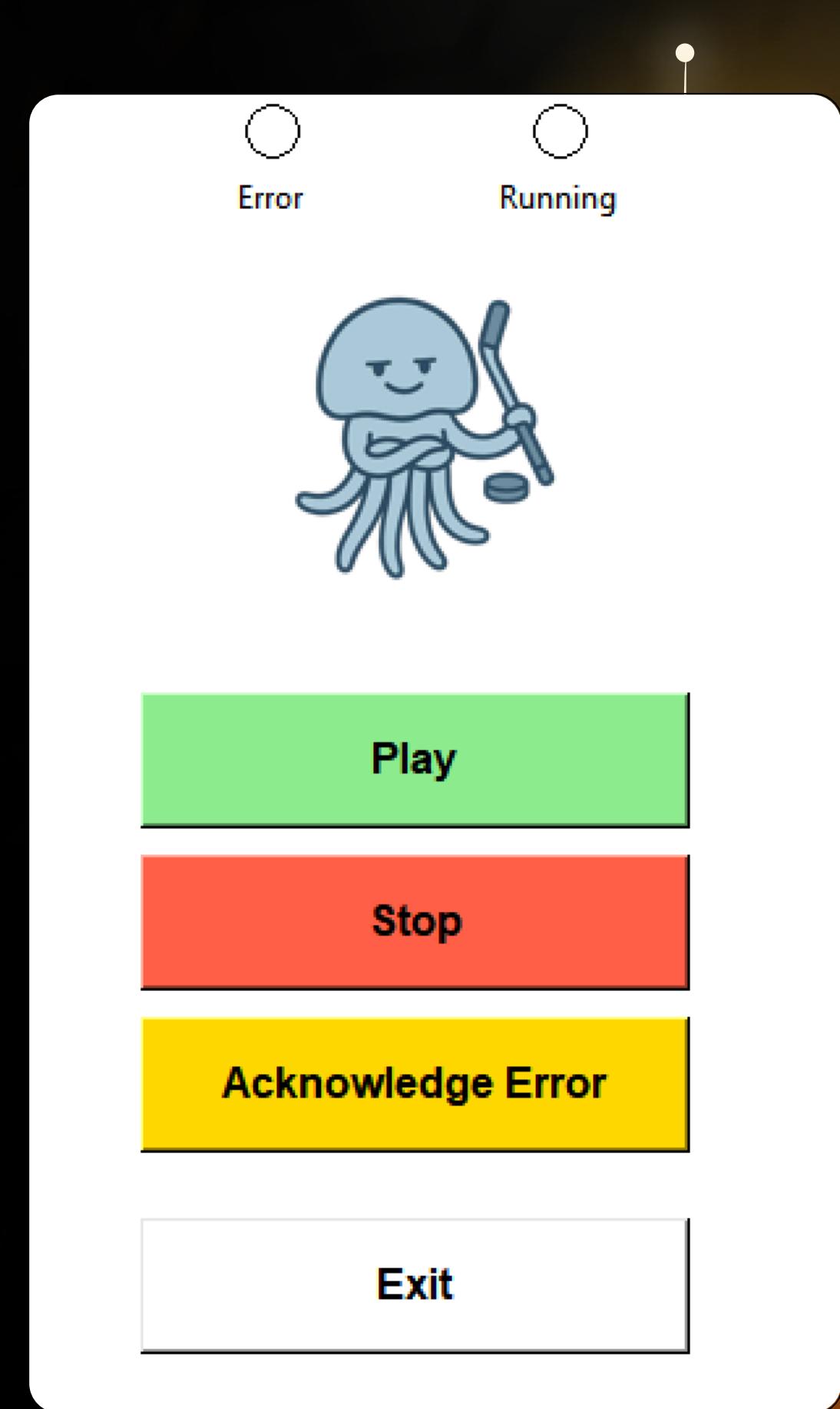
# Our technical solution

- › OpenCV Live-Tracking
- › HSV-based color filtering
- › Puck & paddle detection
- › Modular system architecture



# Vision

## Graphic User Interface



# Live-Demo

```
5     | break
5     # resize the frame, blur it, and convert it to the HSV
7     # color space
3     frame = imutils.resize(frame, width=600)
9     blurred = cv2.GaussianBlur(frame, (11, 11), 0)
0     hsv = cv2.cvtColor(blurred, cv2.COLOR_BGR2HSV)
L     # construct a mask for the color "green", then perform
2     # a series of dilations and erosions to remove any small
3     # blobs left in the mask
1     mask1 = cv2.inRange(hsv, redLower1, redUpper1)
5     mask2 = cv2.inRange(hsv, redLower2, redUpper2)
5     mask = cv2.bitwise_or(mask1, mask2)
7     mask = cv2.erode(mask, None, iterations=2)
3     mask = cv2.dilate(mask, None, iterations=2)
9
0     # find contours in the mask and initialize the current
L     # (x, y) center of the ball
2     cnts = cv2.findContours(mask.copy(), cv2.RETR_EXTERNAL,
3         cv2.CHAIN_APPROX_SIMPLE)
1     cnts = imutils.grab_contours(cnts)
5     center = None
5     # only proceed if at least one contour was found
```

