

## Problem

- Sighted people generally use **visual** and **pointing** references to indicate an **area of interest** when talking to collaborators.
- Blind and low vision (BLV) people tend to use **non-visual** methods.
- This disconnect leads to a lack of **shared attention** and **miscommunication**, which prevents effective **collaboration**.

## Solution

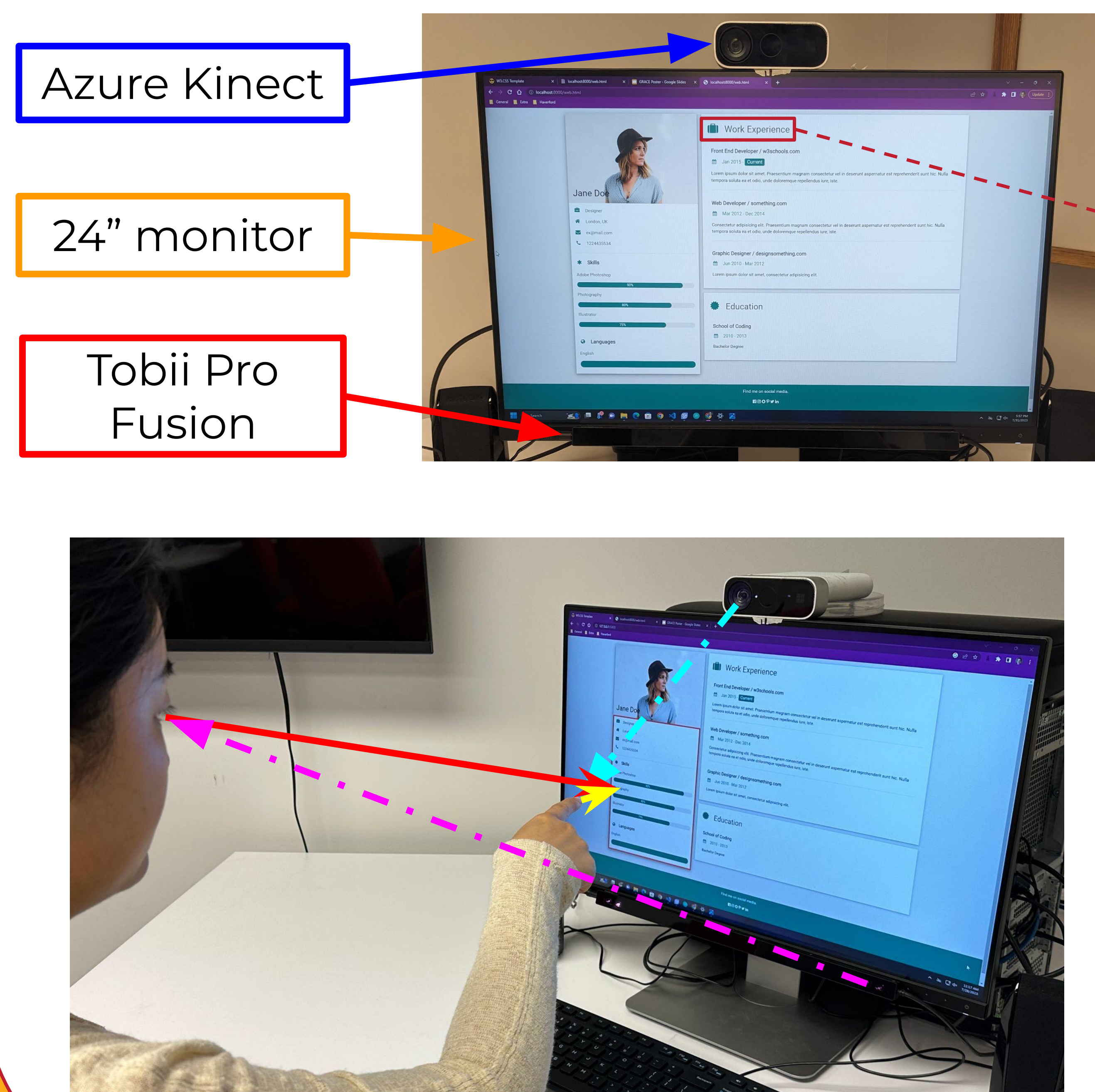
- Using **gaze** and **gesture** cues to locate **areas of interest** and link them to **objects** on the screen (buttons, text).
- This data can be sent to a BLV collaborator's **screen reader** to reduce their **burden** of finding that object, helping them communicate efficiently!
- **Combining** two streams of data **reduces uncertainty** about where a user is indicating and leads to more **accurate** object acquisition.

## Check it out!

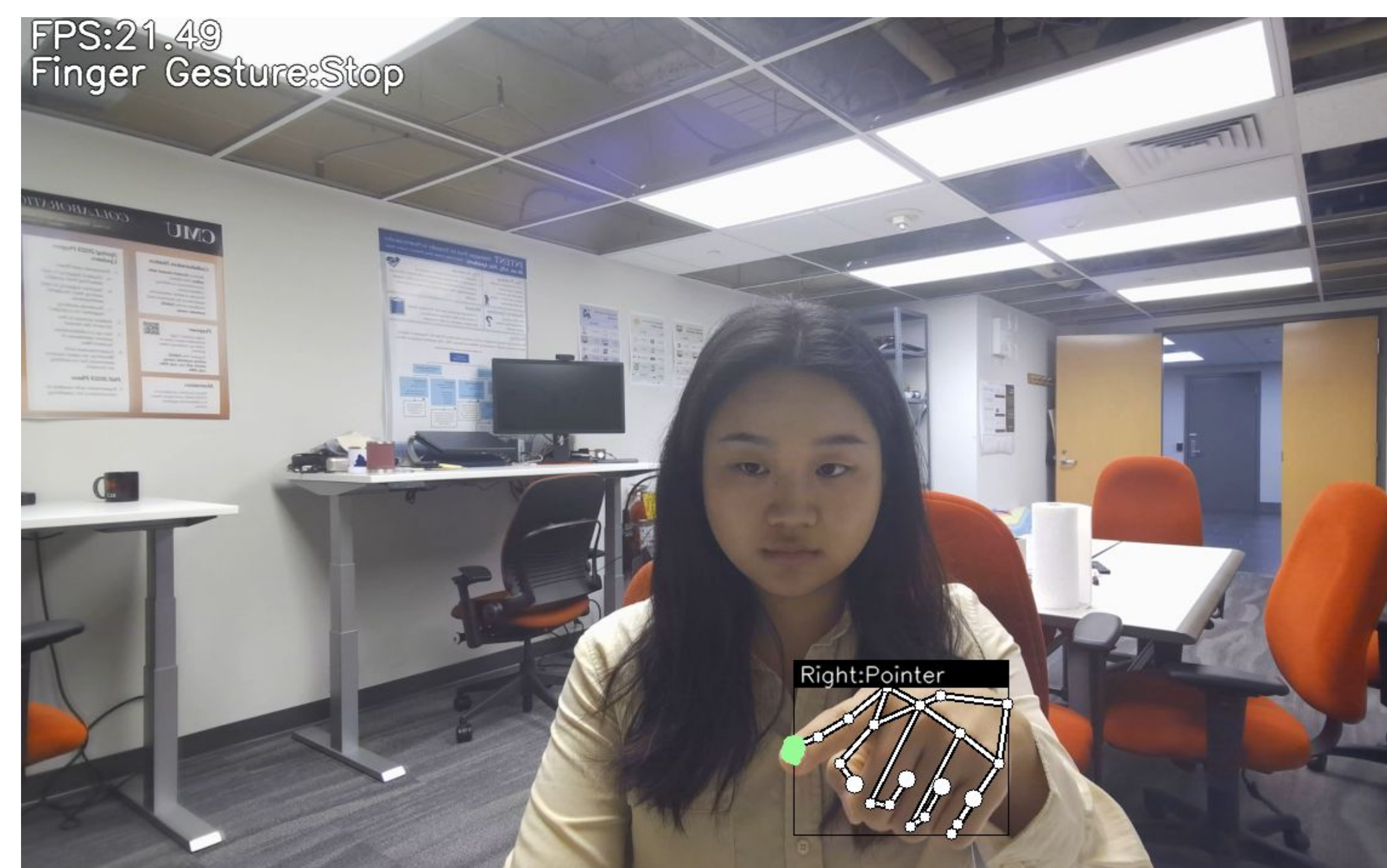
 Visit our site at [linktr.ee/grace\\_variability](https://linktr.ee/grace_variability)

 Scan the **QR code** to see our demo or learn about our lab!


## System Design



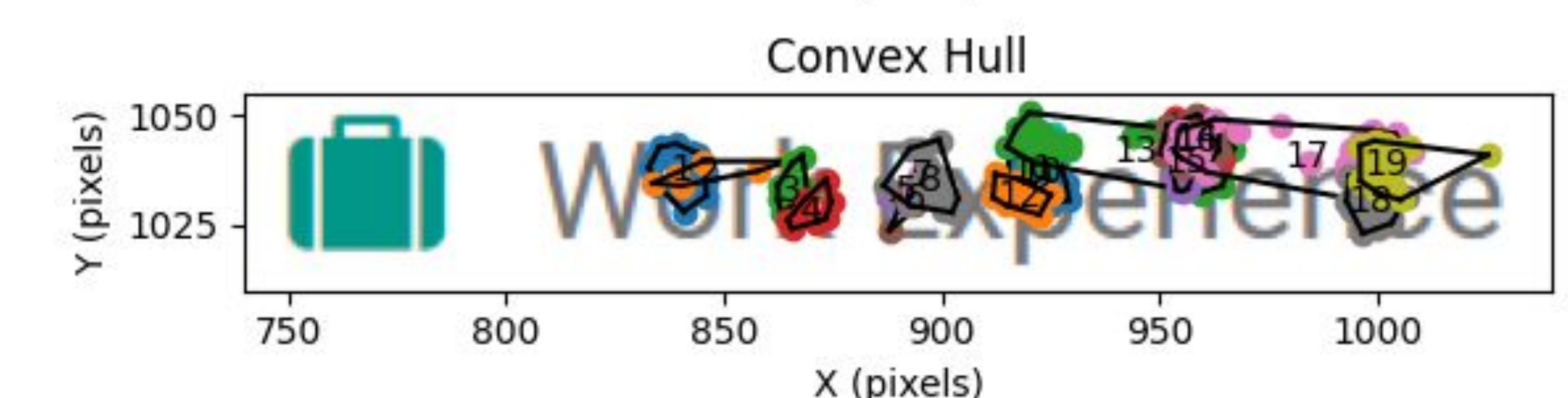
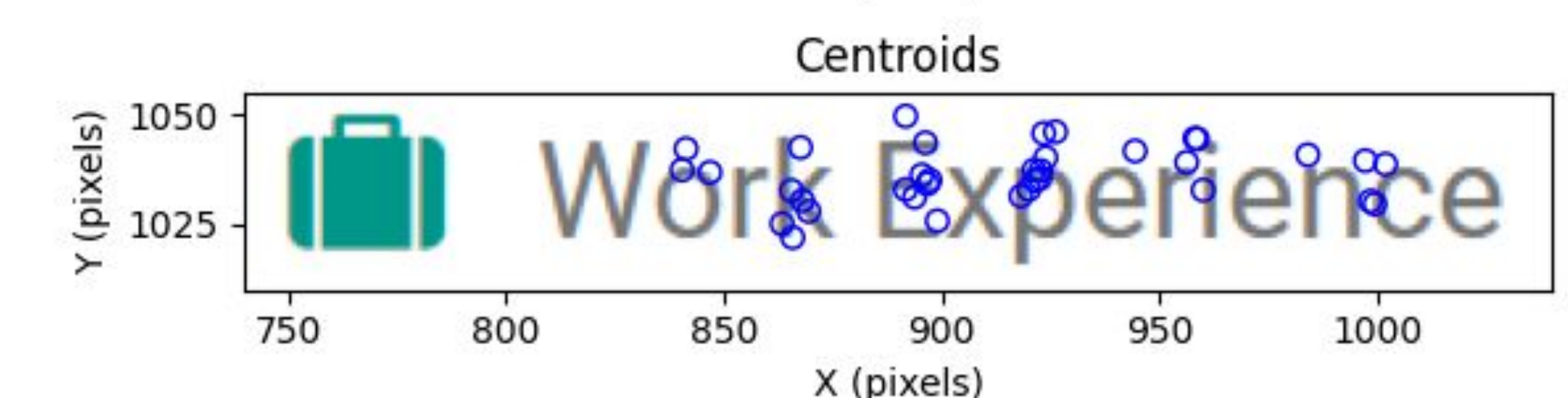
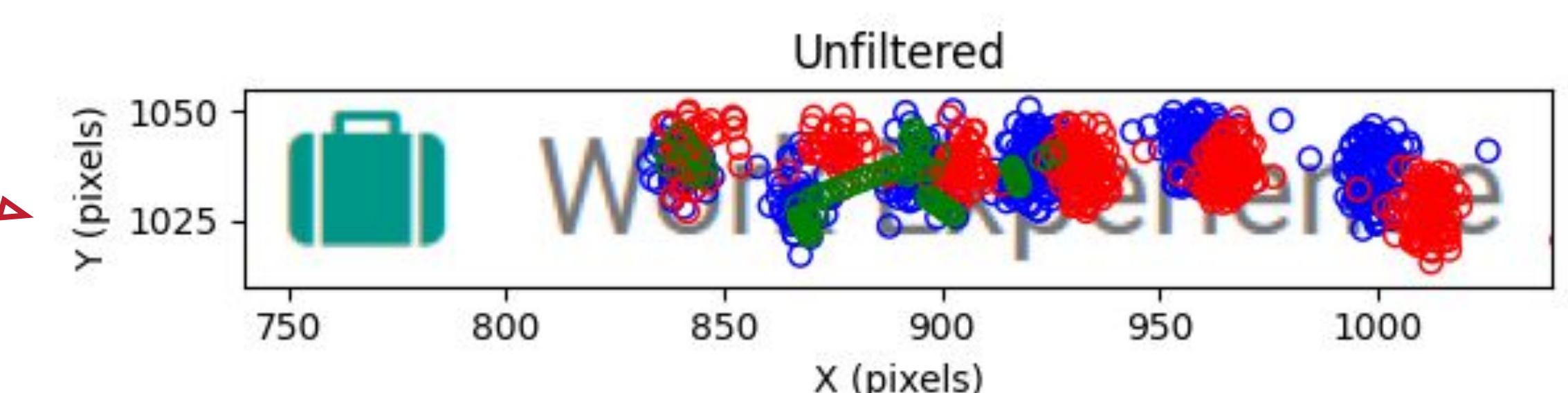
## Hand Tracking



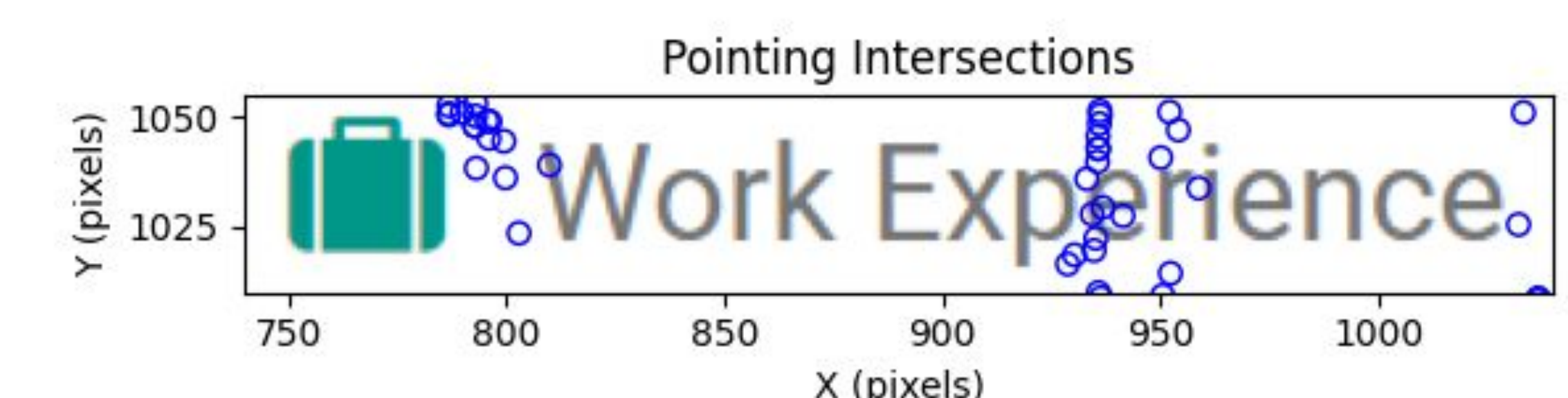
## Results

Users looked and pointed at "Work Experience"

Eye tracking raw, centroid, and convex hull data:



Hand tracking pointing data:



## Future Steps

1. Conduct a **user study** to determine how our system improves users' shared attention and ability to complete tasks.
2. Add **speech processing** to trigger the recognition system, e.g. "look at that."
3. Leverage **machine learning** to triangulate data streams and recognize more complex gestures.