

DEMO PRESENTATION

ECHOSPACE-AR

MOTTO: “Designing environmental awareness
without relying on sound.”

CS 449 / 549 – Human Computer Interaction
Sabancı University



MEET WITH OUR TEAM



Alper Çamlı

Team Leader - Unity/Python Developer



Selman Yılmaz

AR Developer / Data Analyst



Korhan Erdoğdu

Android Developer / VR Graphics



Emre Berk Hamarat

Hardware Coordinator



Şeyma Kalender

Behavioral Data Lead



Zeynep Şahin

UX/UI researcher

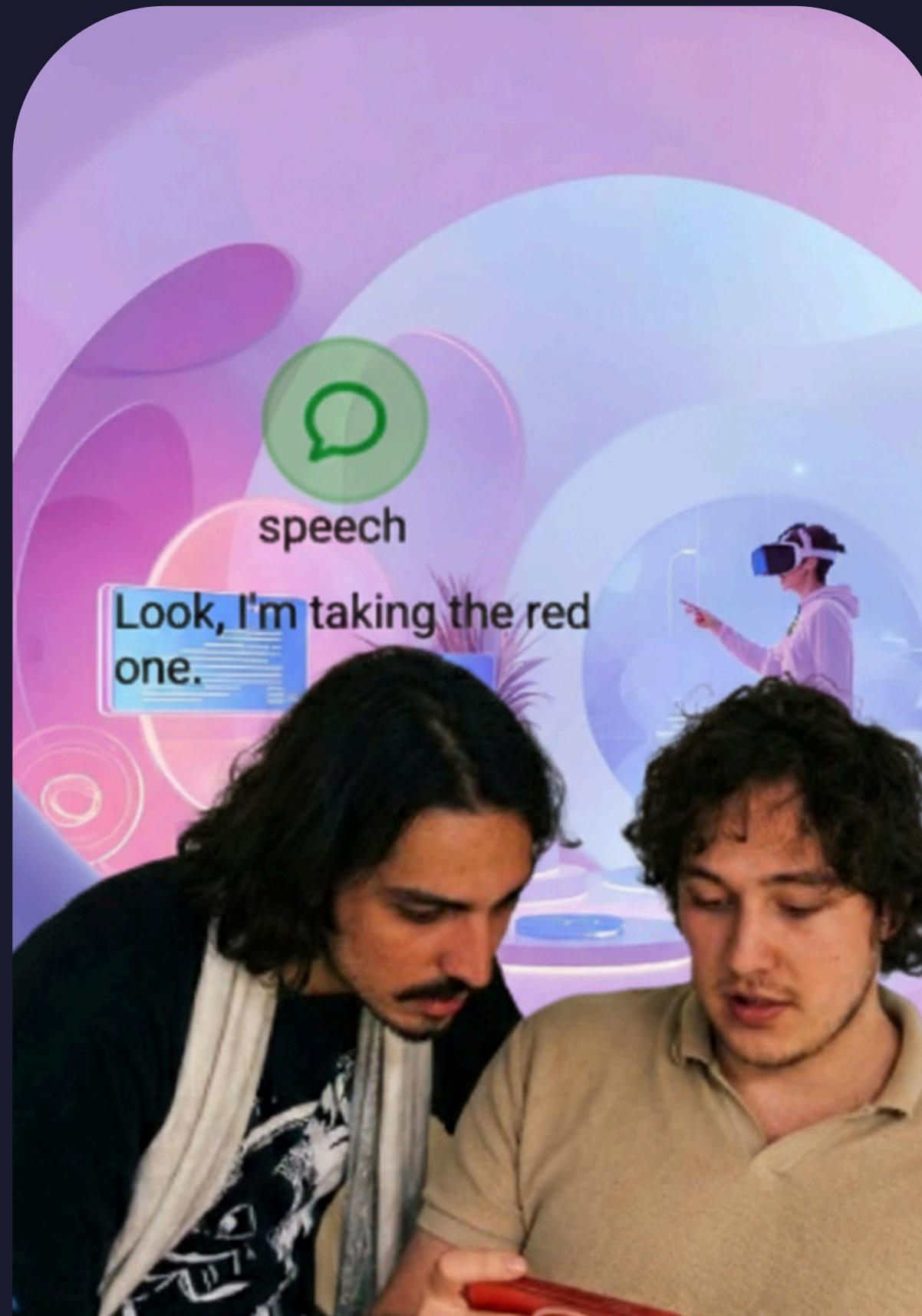
Enhanced Spatial Awareness

**Without
EchoSpaceAR**

No environmental
feedback

High ambiguity

ONLY guesswork



**With
EchoSpaceAR**

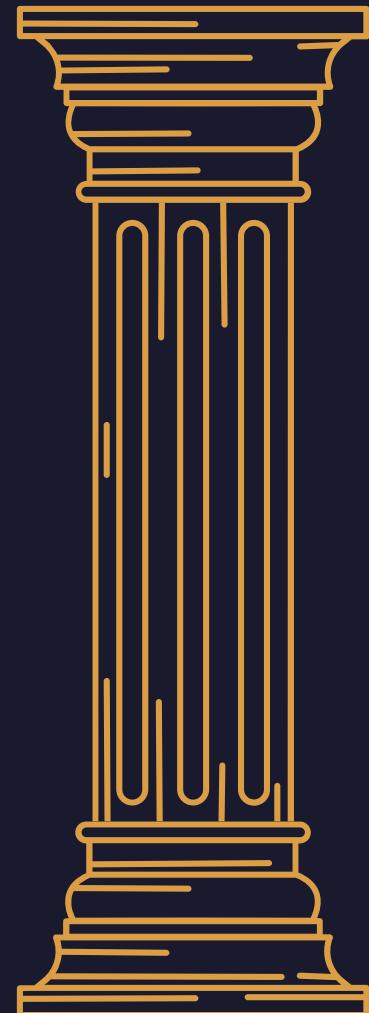
Immediate
visual-spatial
feedback

Direction + urgency
encoded

Minimal decision
overhead

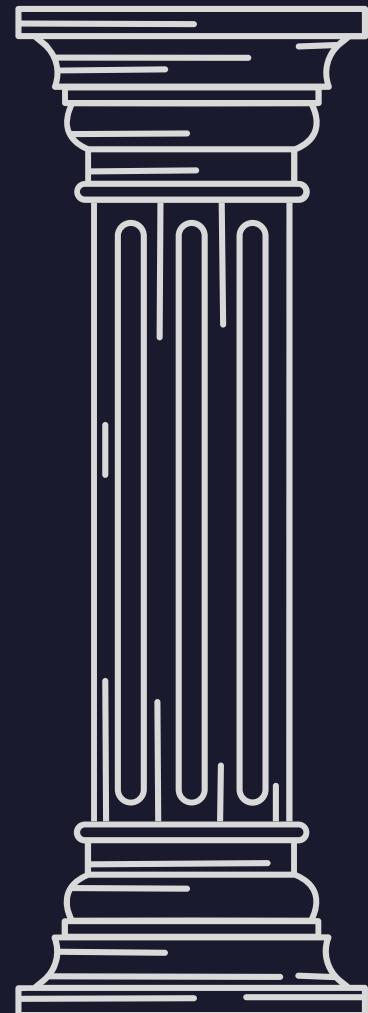
HCI ALIGNMENT

User Interface Requirements



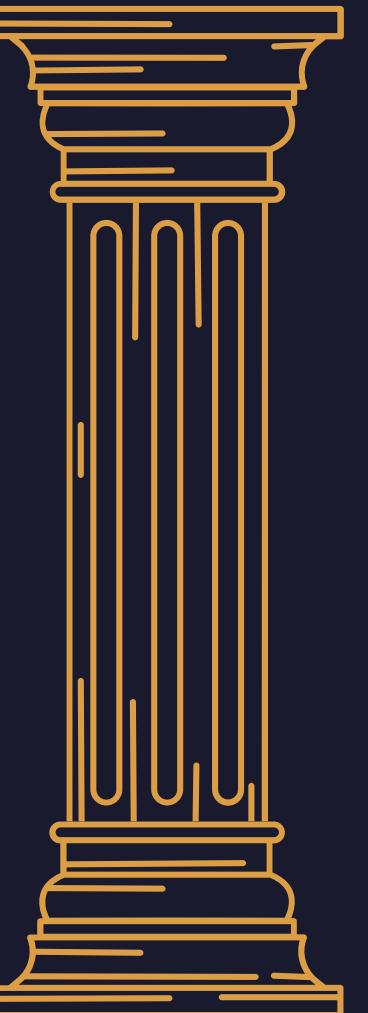
XR HUD readability, font scaling,
placement & attention cues

Guidelines Documents
&
Process



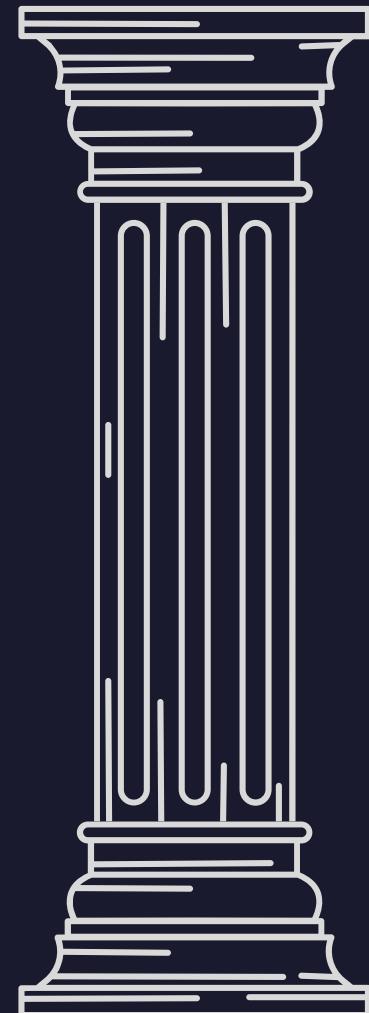
Meta XR / Unity XR best practices +
iteration checklist (latency, comfort, UX)

User Interface Software Tools



Unity XR Toolkit, Meta XR SDK, audio
capture + backend integration

Expert Reviews
&
Usability Testing



Android, Quest 2/3 on-device testing +
Python audio analysis pipeline

USABILITY TESTING

System Usability Scale (SUS)

Technology Acceptance Model (TAM)

DATA LOGGINGS

User Reaction Time

Accuracy

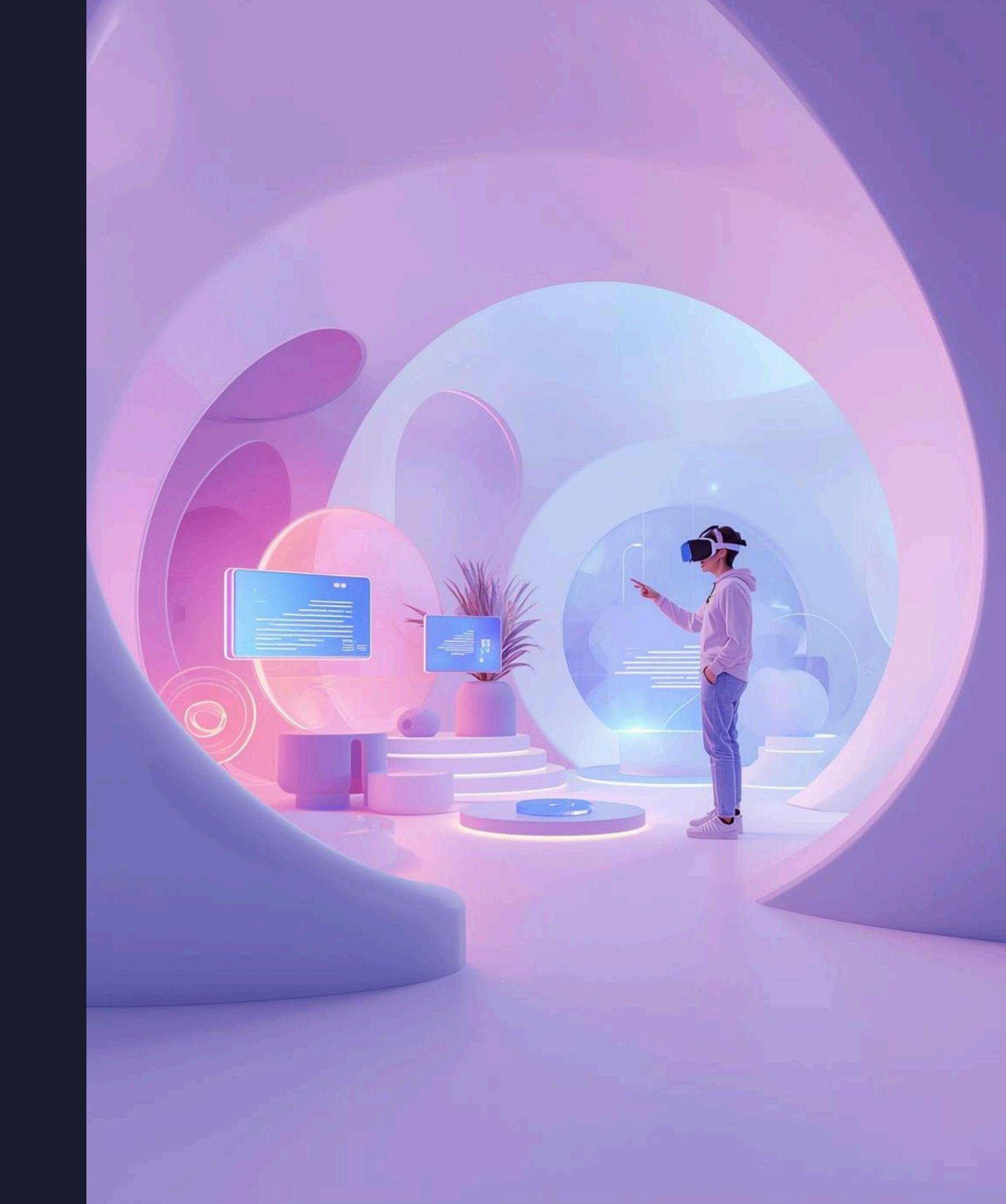
DESIGN TRADEOFFS

Design trade-offs

- Visibility vs visual clutter
- Urgency signaling vs distraction
- Precision vs simplicity

Usability limitations

- Low accuracy in complex environments
- Short learning curve required
- AR field-of-view constraints



Thank you
FOR LISTENING!