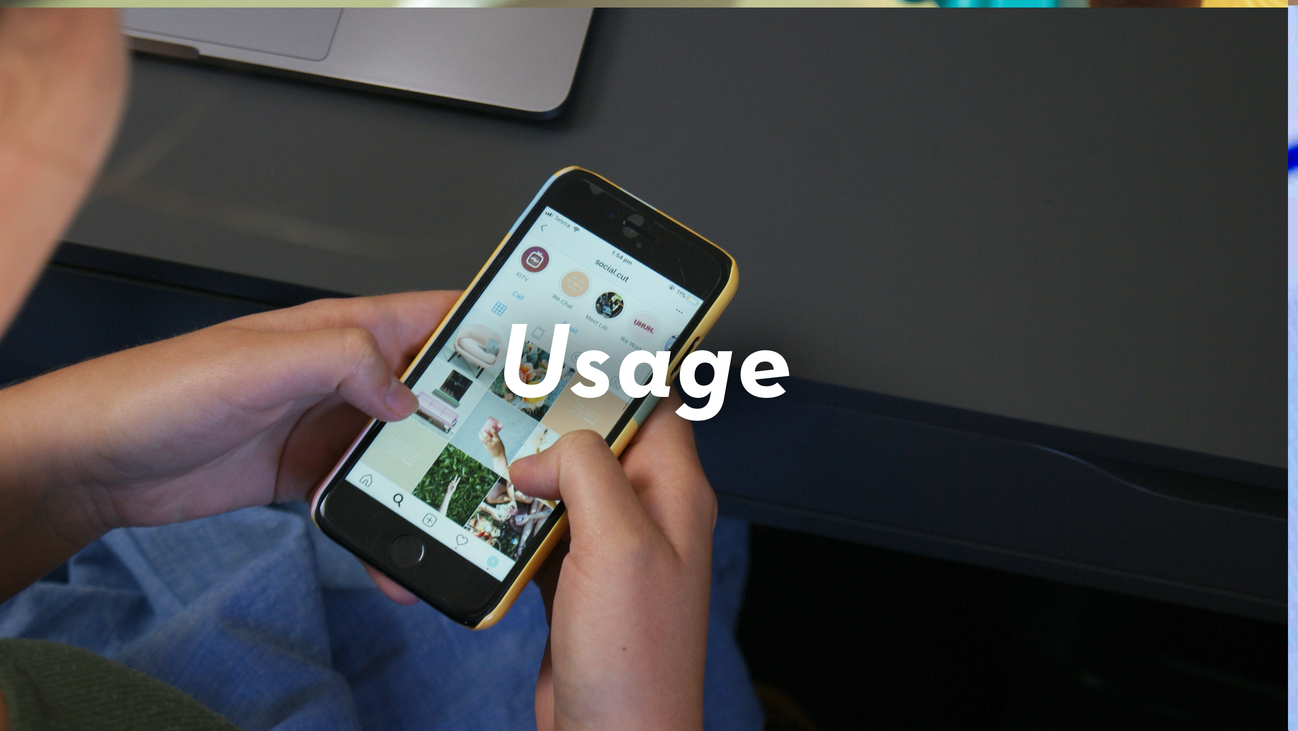
DESIGNING MACHINE LEARNING

A Multi-Disciplinary Approach

Human-Machine Interaction


Labeling Data


Ideation


Usage


Feedback
Report Spam
Read

Human Labeling
Interface Design

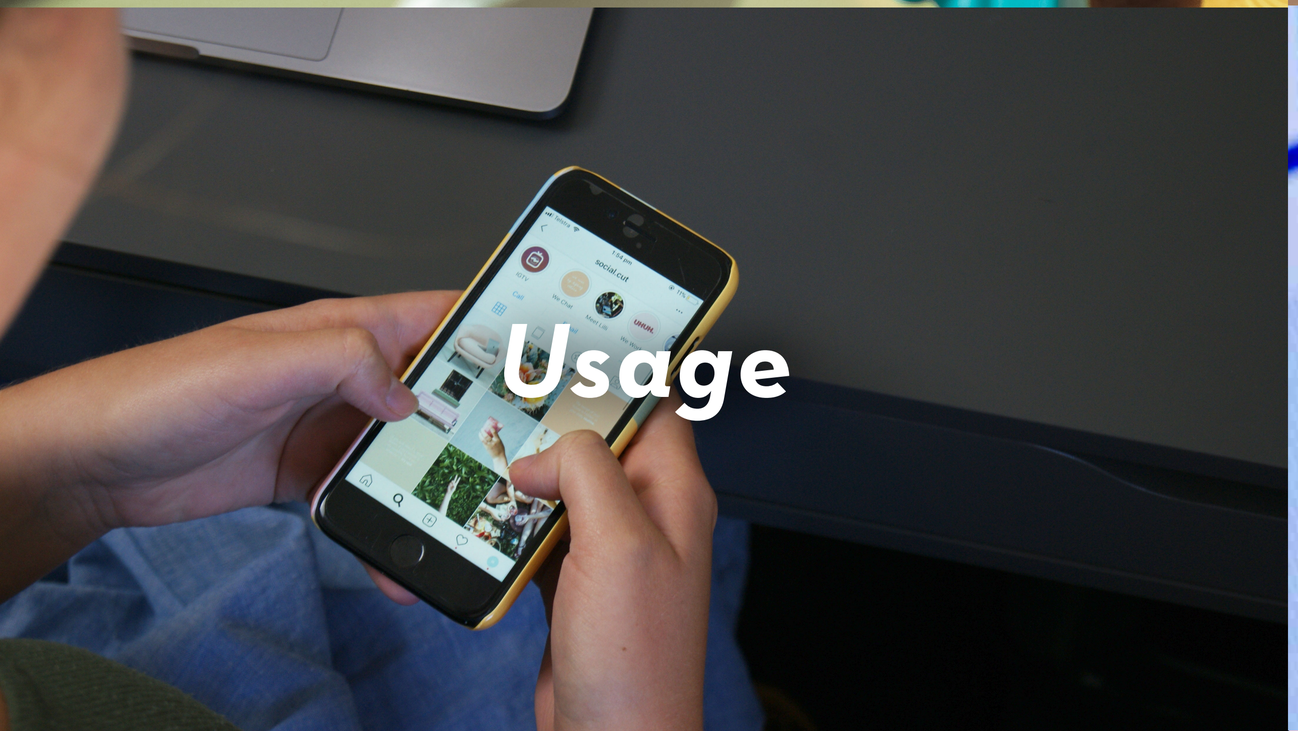
Selective Labeling

Machine Assisted
Human Labeling

d.ML


Labeling Data


Ideation


Usage


Feedback
Report Spam
Read

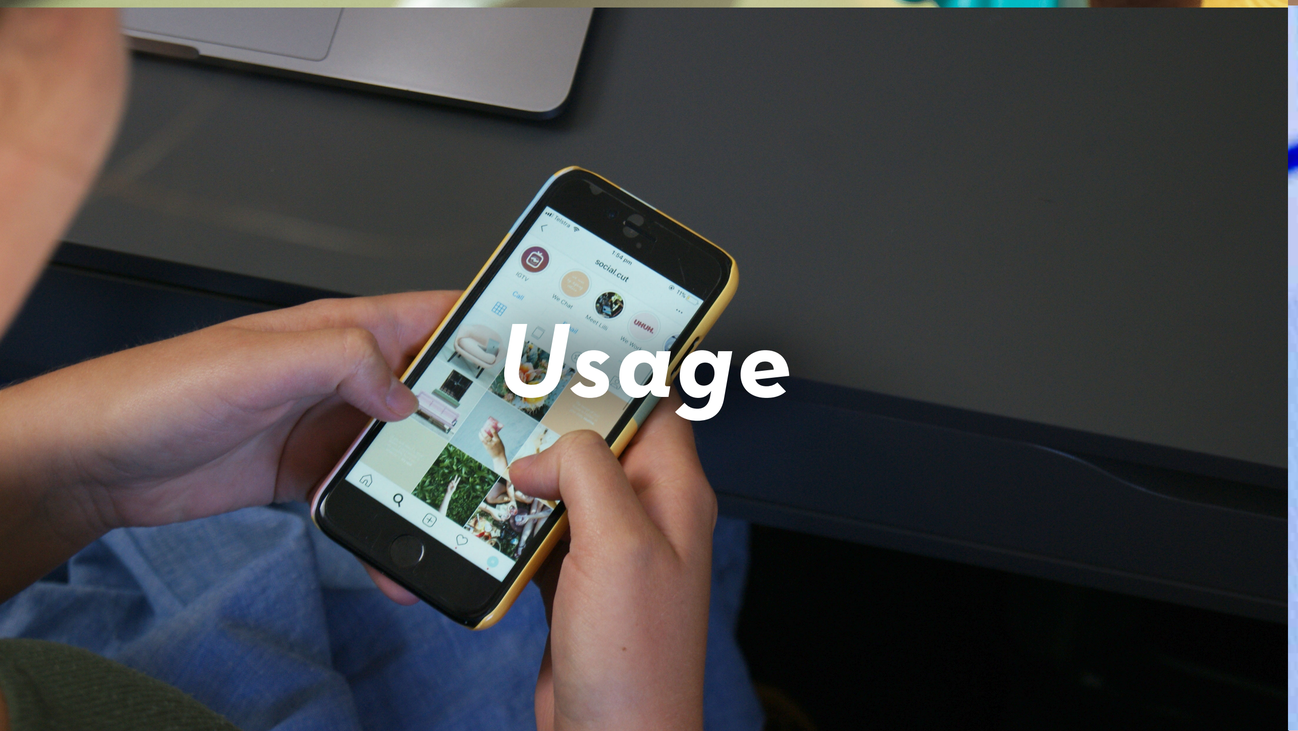
Data Exploration Tools

Generative Design

Clustering


Labeling Data

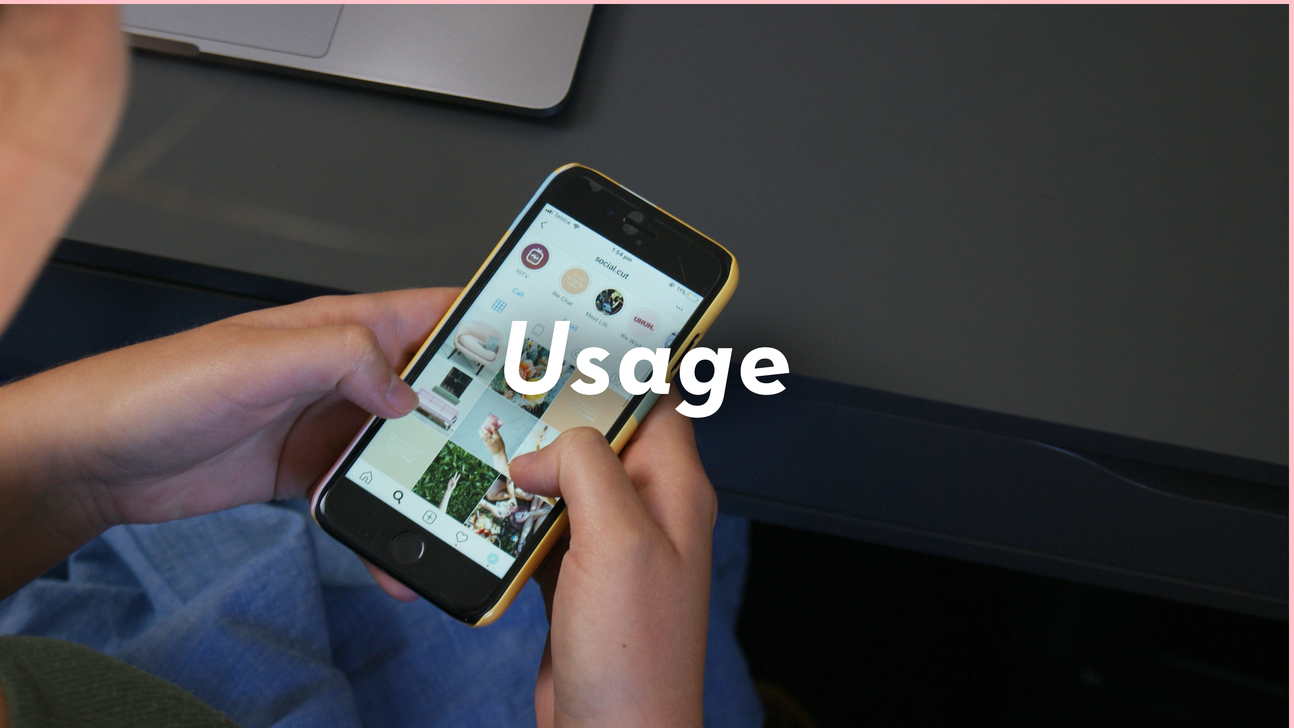

Ideation


Usage


Feedback
Report Spam
Read

Personalized and
Adaptative Interfaces

Interacting with
Recommenders and
Classifiers

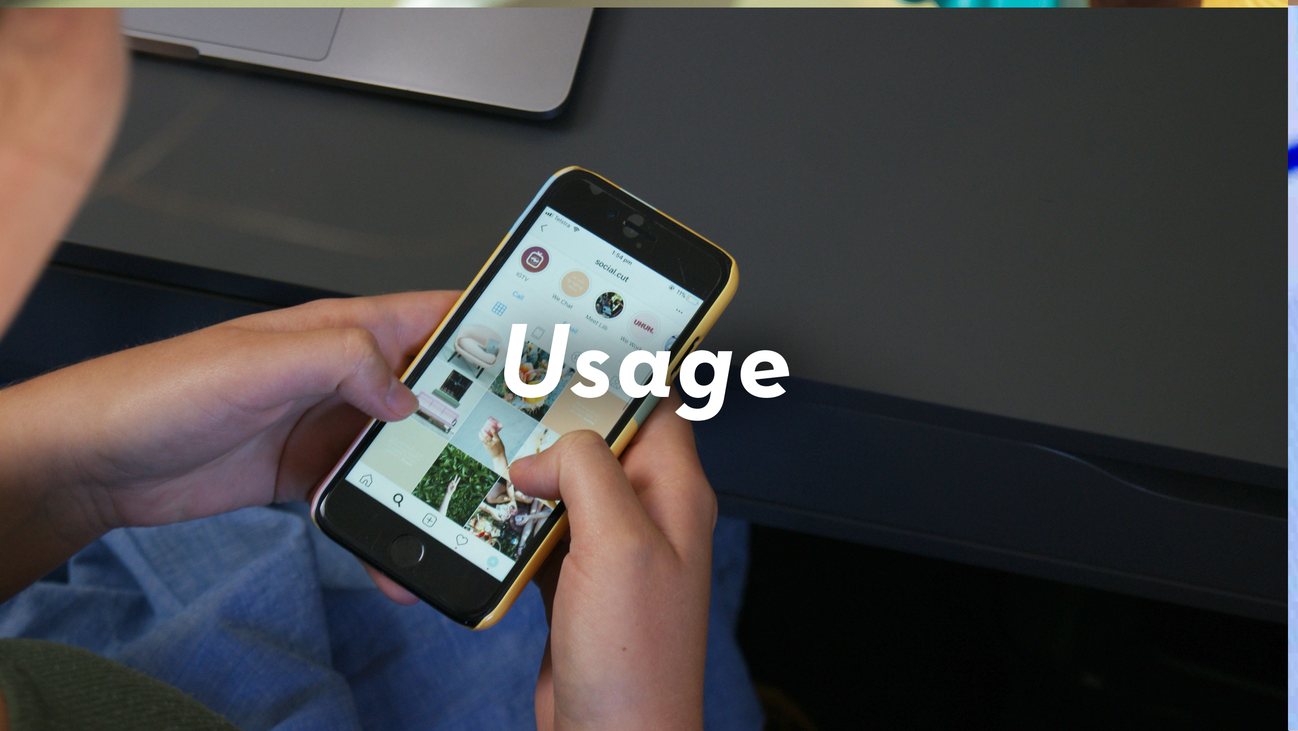


Augmented Interfaces

d.ML


Labeling Data


Ideation


Usage


Feedback
Report Spam
Read

Human adjudication and
Escalation Processes

Explainability and
Transparency

What makes a human-machine interaction “good”?


What makes a car
“good”?

...why my uncle can't use an autonomous vehicle...

Human

Machine

Human Machine Interface Design

d.ML

Human

Machine

Human Machine Interface Design

d.ML

Human

Machine

Human Machine Interface Design

d.ML

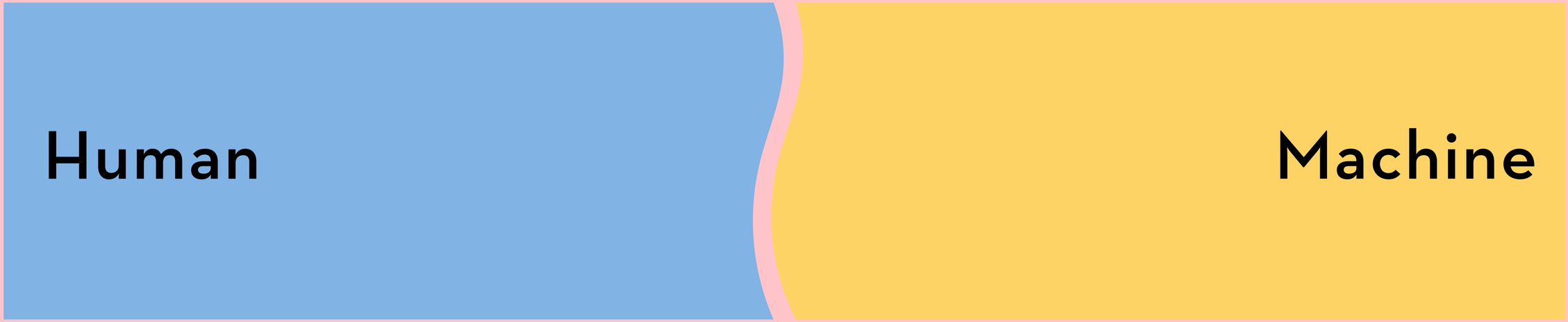
Human Machine Interface Design

Human

Machine

Human Machine Interface Design

d.ML



Human Machine Interface Design

Case Study:

Visual Impairment in India

Visual Impairment in India

- India has 1/3 of the world's blind and visually impaired people
- 75% of these cases are avoidable, but persist due to socio-economic factors and lack of access to treatment
- India has 1/5 of the necessary ophthalmologists to address their visually impaired population

Hypothesis #1:

Auditory ‘braille’ that doesn’t require you to touch or know how to read braille

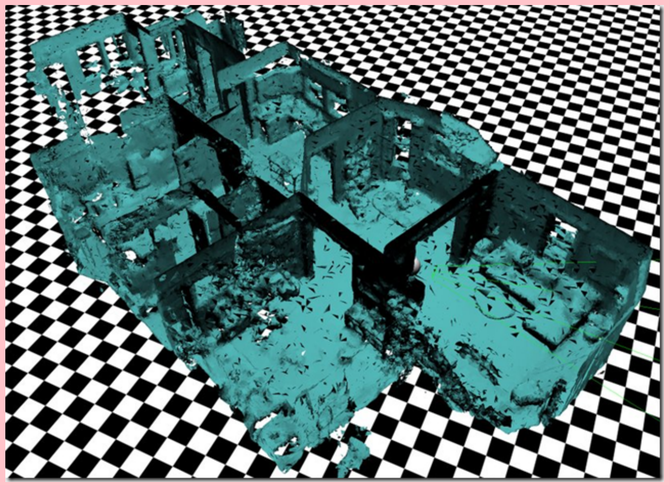
Visual Impairment in India

Hypothesis #2:

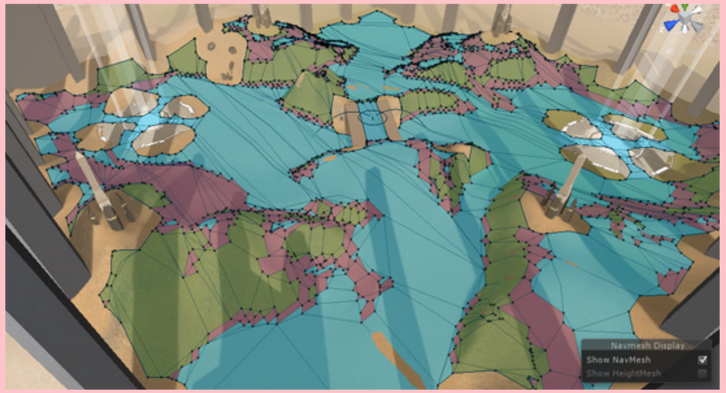
Augmented navigation tool that automatically creates navigation guide from point mesh

Visual Impairment in India

HoloLens
Augmented Reality
Headset



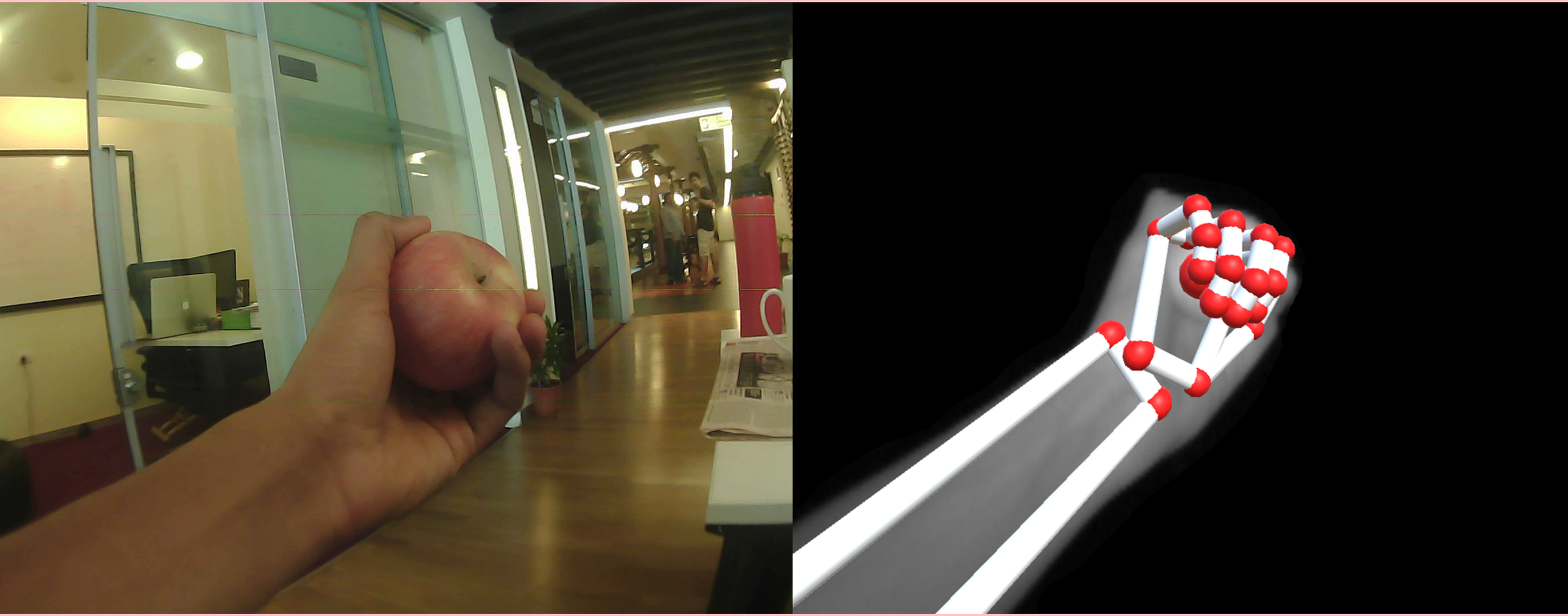
Real-time 3D
spatial mesh
generation



Real-time navigation mesh
floor-pan generation

d.ML

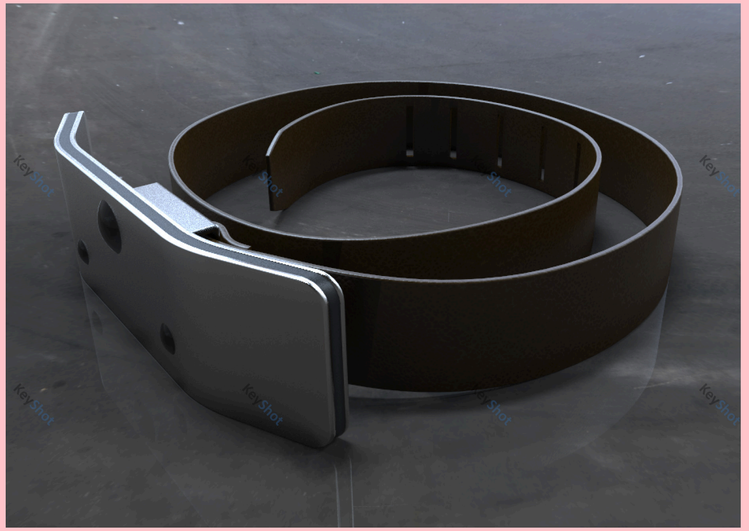
Visual Impairment in India



Hypothesis #3:

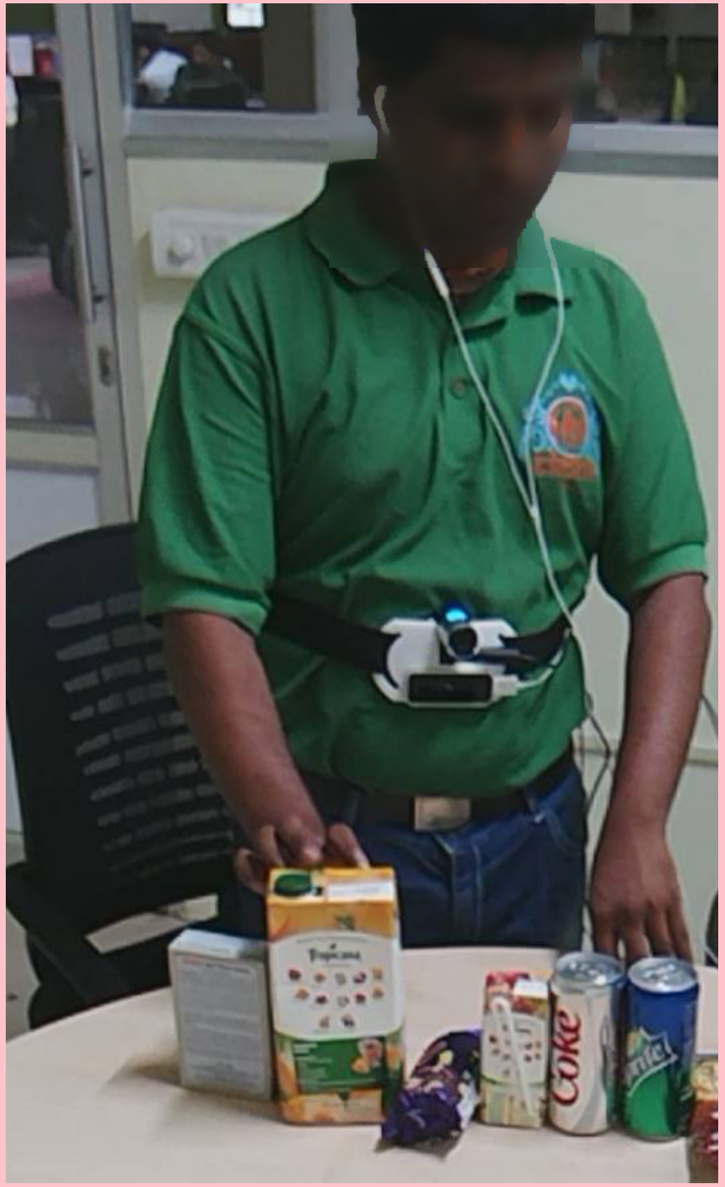
Augmented touch interface that describes objects when you pick them up

Visual Impairment in India



Visual Impairment in India

Visual Impairment in India



d.ML