



Transformed Social Interaction in Immersive Virtual Reality

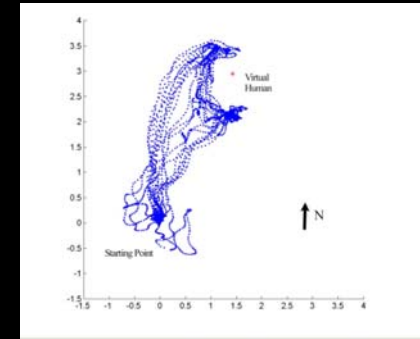
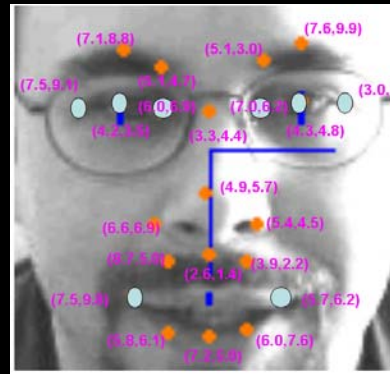
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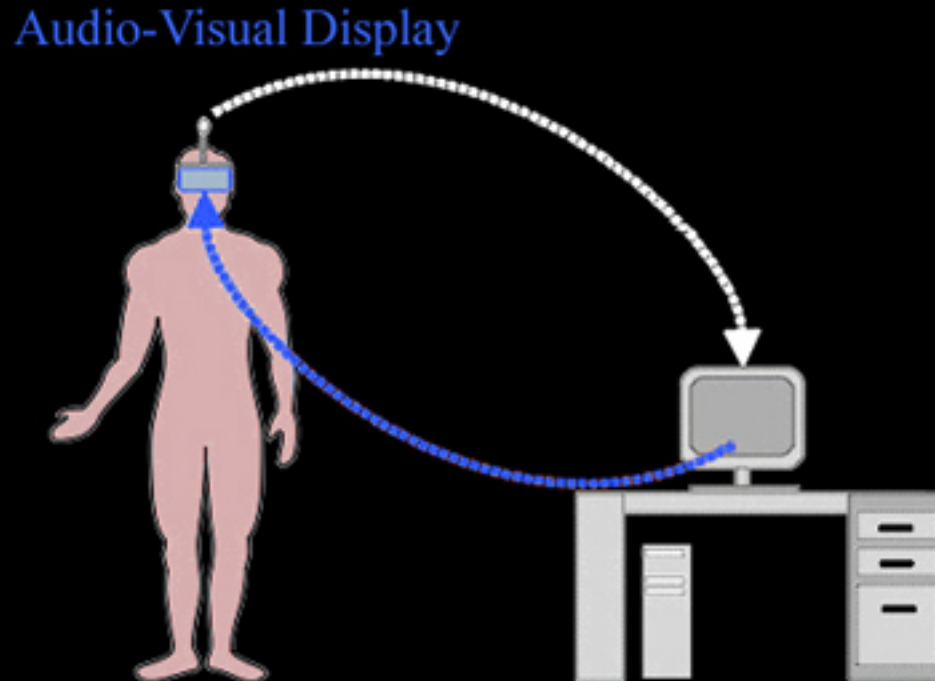
Overview

- Definitions of digital human representation and virtual reality
- Theory of Transformed Social Interaction
- Empirical examples
- Ethics/Implications

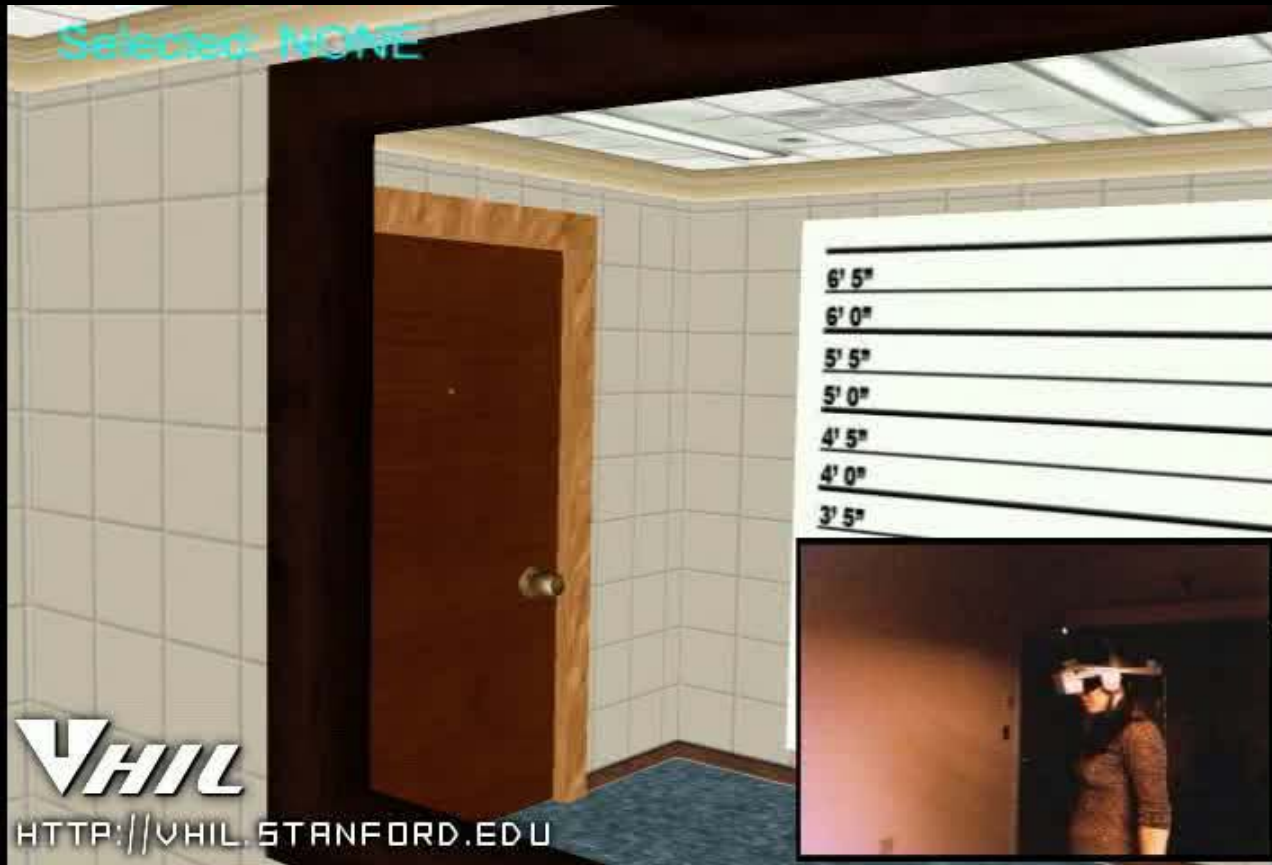
Digital Identities: (Avatars)



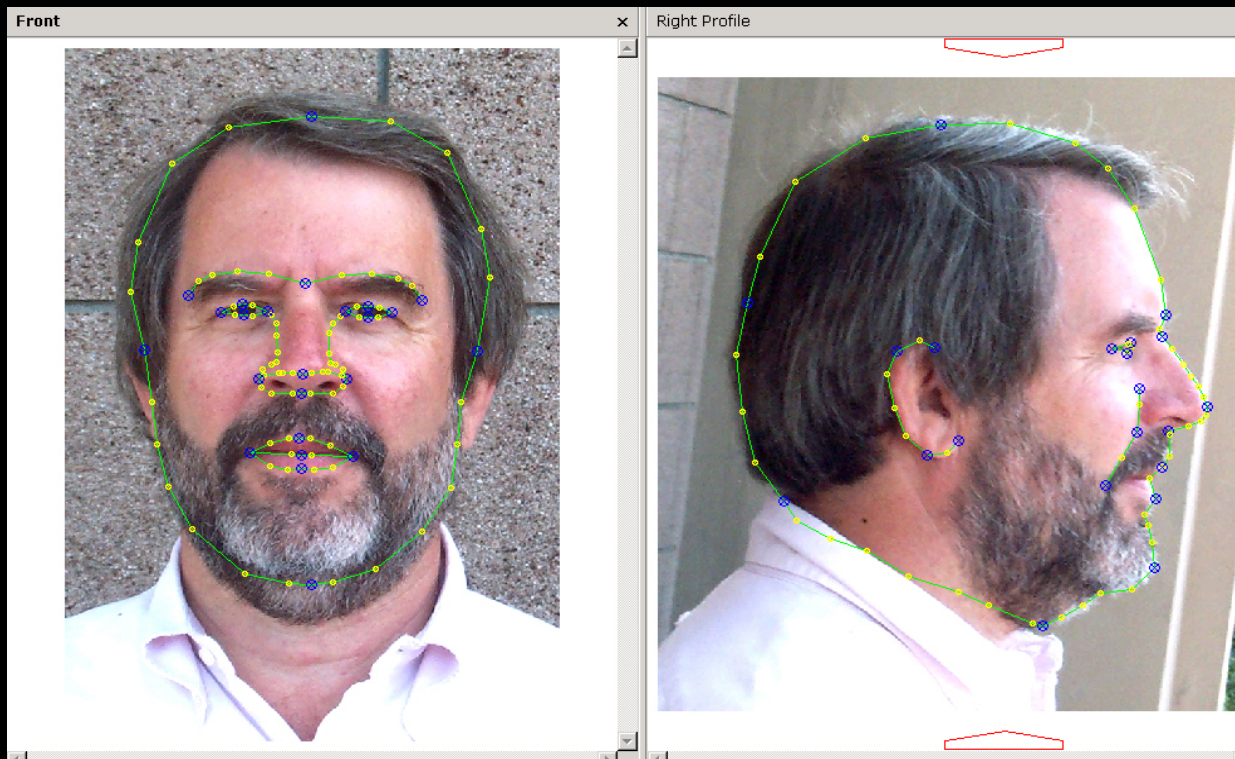
Digital Immersive Virtual Environment Technology



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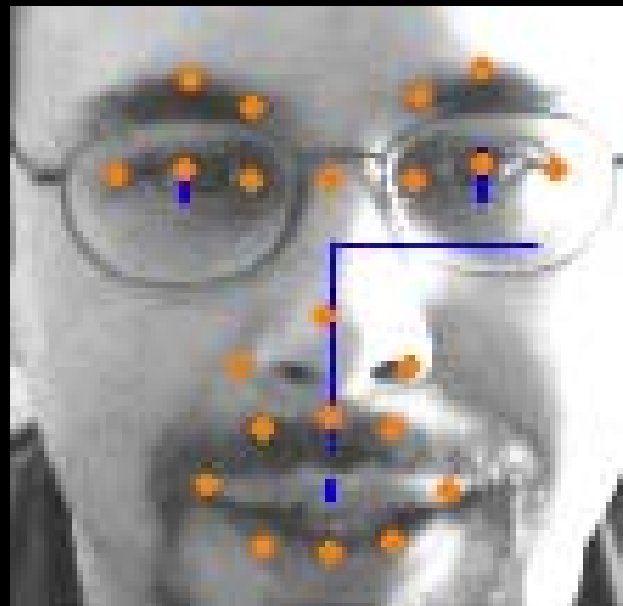
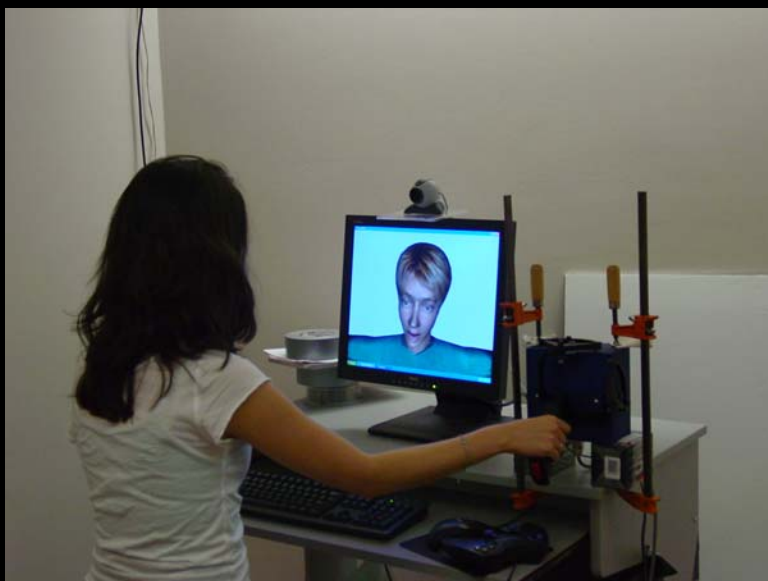
Digital Human Representation (Avatar) Creation



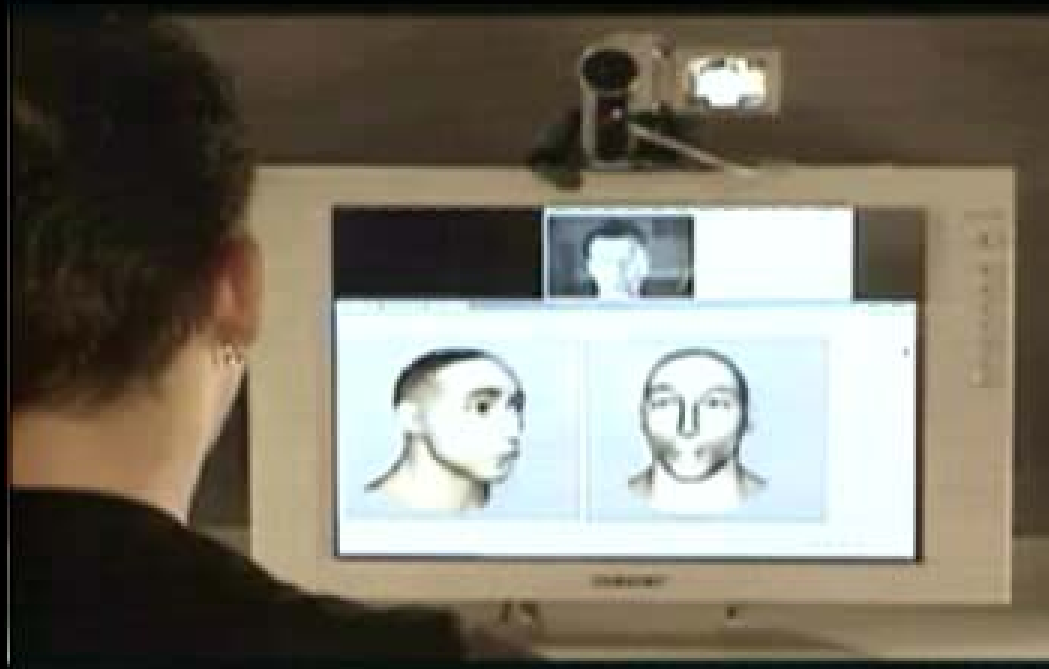
Digital Human Representation (Avatar) Creation



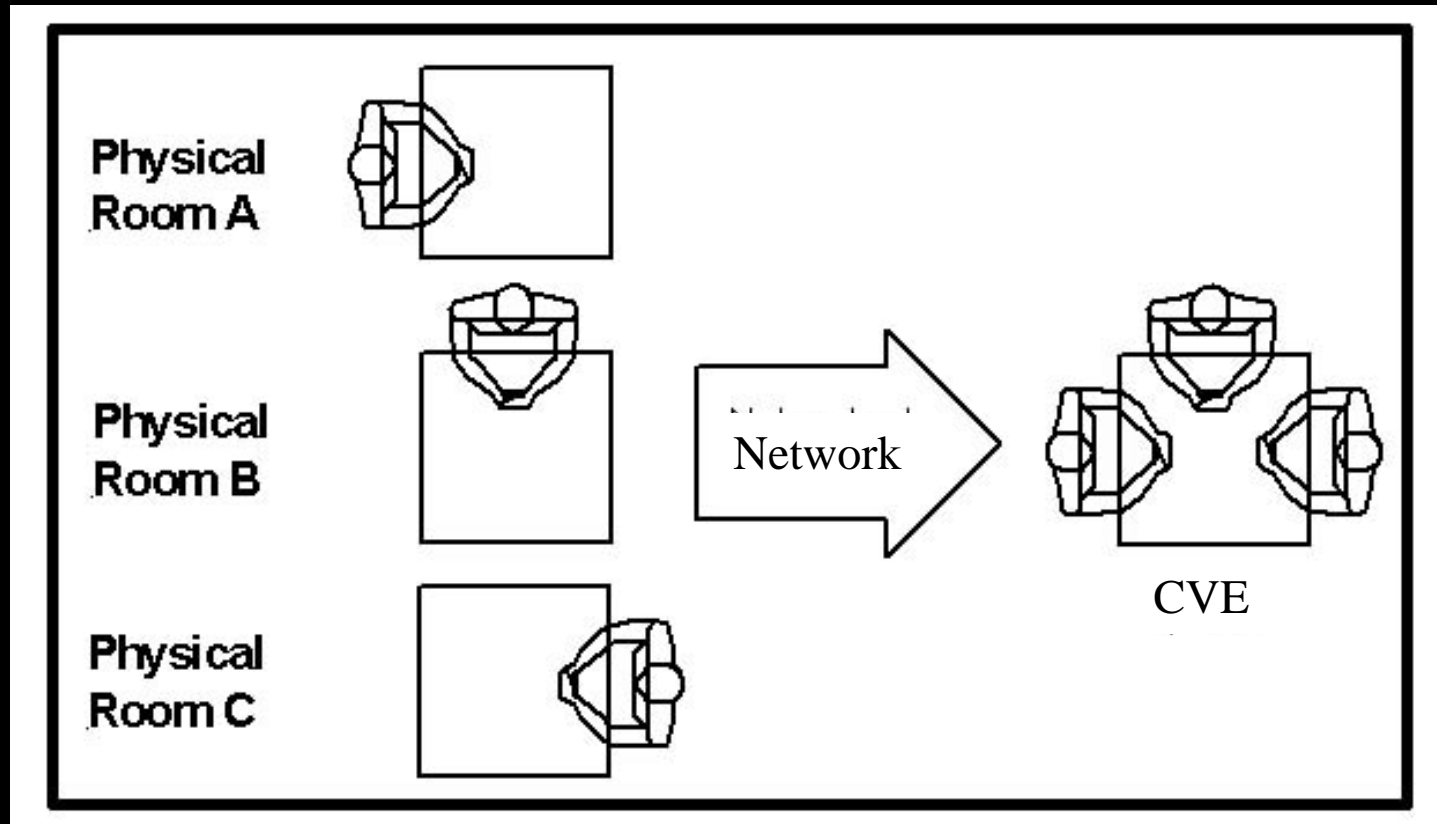
Facial Expression Tracking



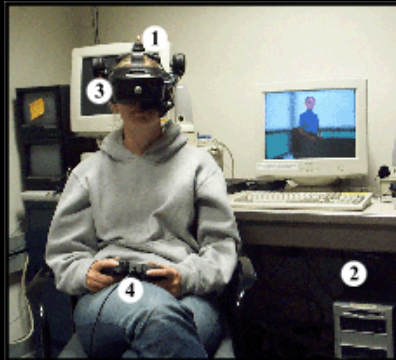
Facial Expression Tracking



Remote Digital Communication



Collaborative Virtual Environments



Transformed Social Interaction (TSI)



Why TSI?

- Study conversational dynamics
- Pushes theoretical boundaries on what it means to represent a human (i.e., avatar)
- Conversational ‘superpowers’

3 Dimensions of TSI

- Transforming Self Representation
- Transforming Social-Sensory Abilities
- Transforming Social Context

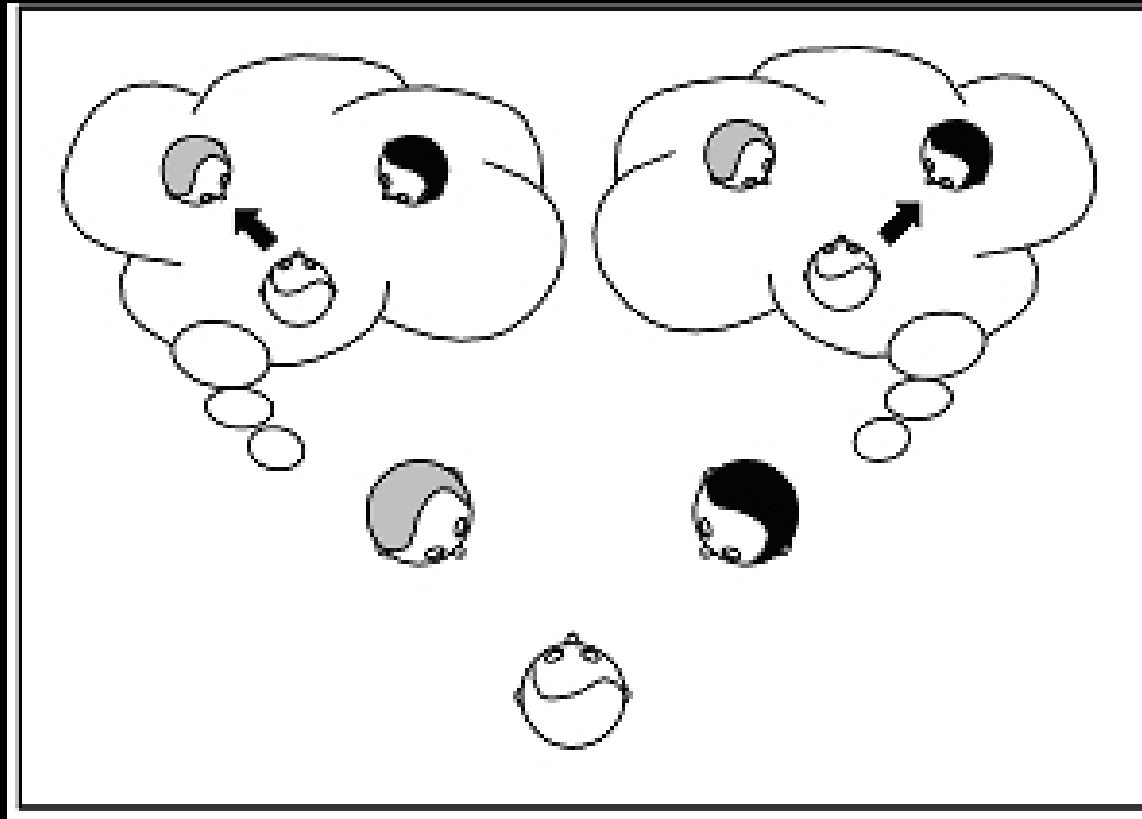
TSI : Transforming Self Representation

TSI: Augmented Gaze

- Gaze is powerful:
 - Learning (Sherwood, 1987)
 - Persuasion (Morton, 1980)
 - Physiological Arousal (Wellens, 1987)
 - Shaping the structure of a conversation (Kendon, 1987; Argyle, 1988)



TSI: Augmented Gaze



TSI: Digital Chameleon



TSI: Digital Chameleon

- Persuasive passage read by Agent
- 60 subjects
 - Mimic (4s lag)
 - Recording of other subject



TSI: Facial Identity Capture



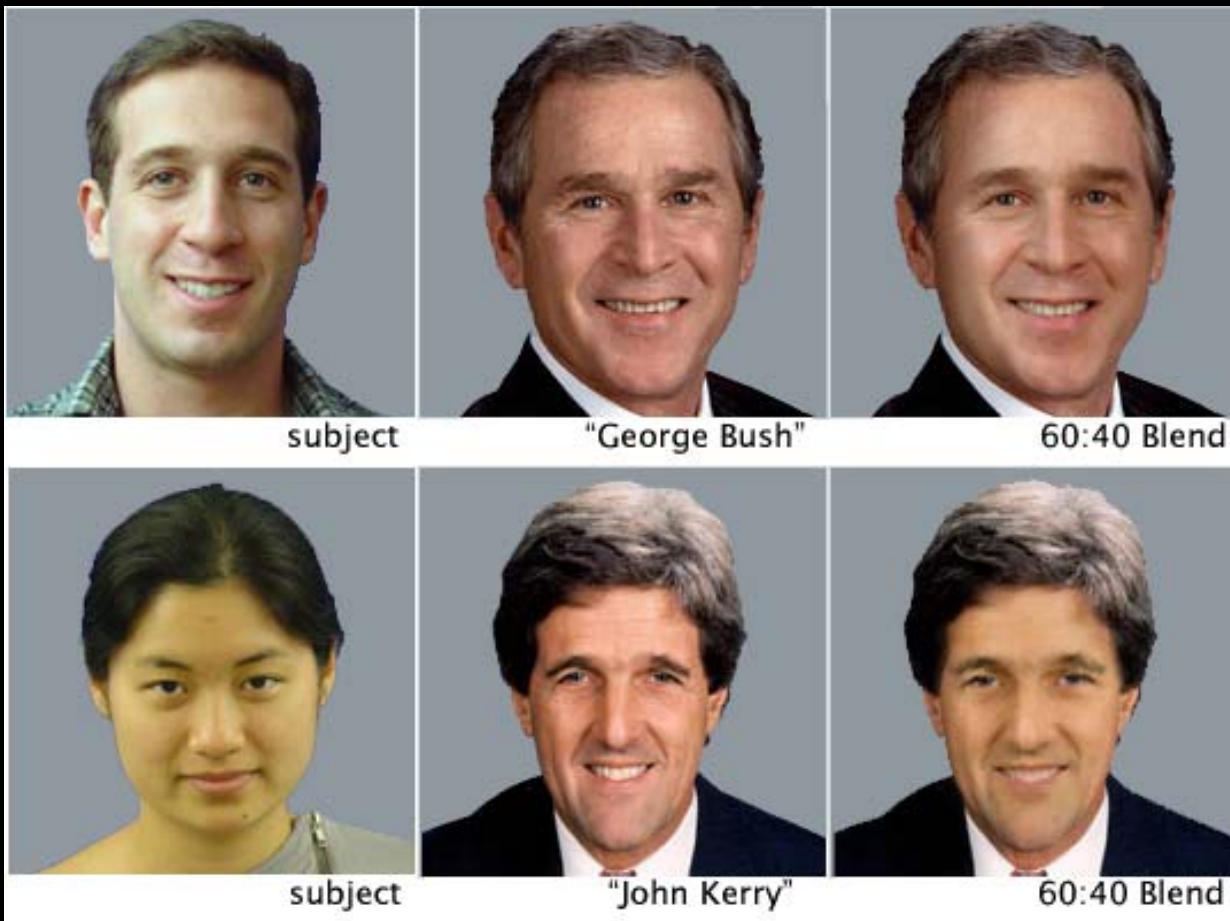
TSI: Identity Capture

- Similarity among people results in:
 - Attraction (Shanteau & Nagy, 1979)
 - More Persuasion (Chaiken, 1979)
 - More purchases (Brock, 1965)
 - More altruistic helping behavior (Dovidio, 1984)
 - Trust (DeBruine, 2002)

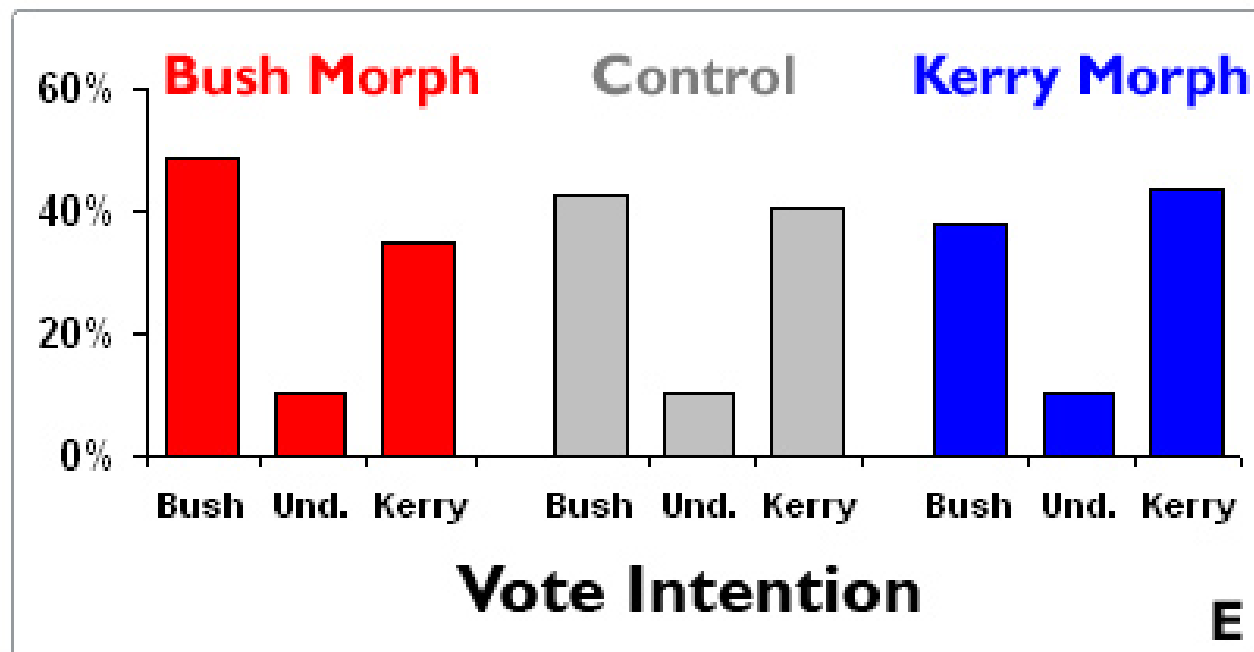
Facial Identity Capture: High Info, Familiar Target

- National random sample (N = 200)
- 1 Week before presidential election
- Viewed candidate photos while evaluating Bush and Kerry
- 3 groups of subjects
 - No morph
 - Bush Self, Other Kerry
 - Kerry Self, Other Bush

TSI: Facial Identity Capture



TSI: Facial Identity Capture





Subject



Hillary Clinton



Morph
(35% Subject, 65% Clinton)



Subject



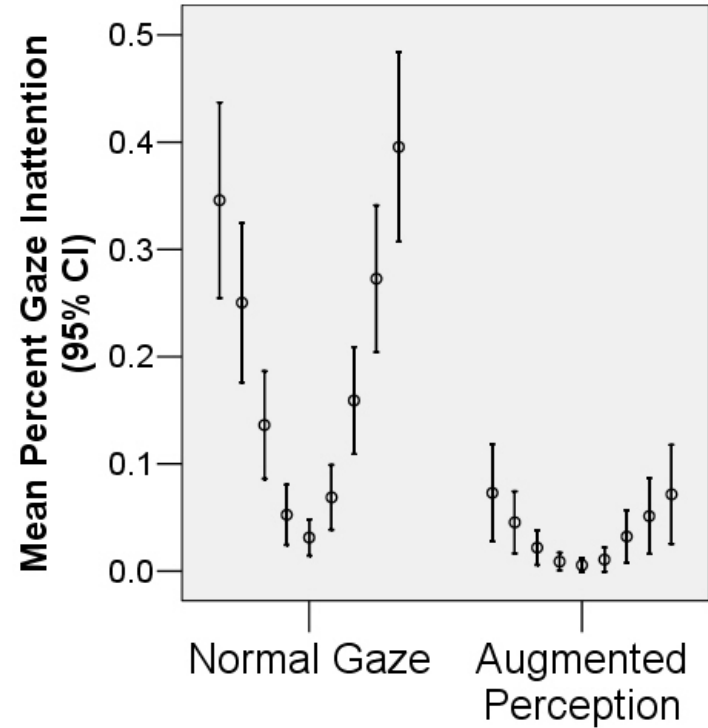
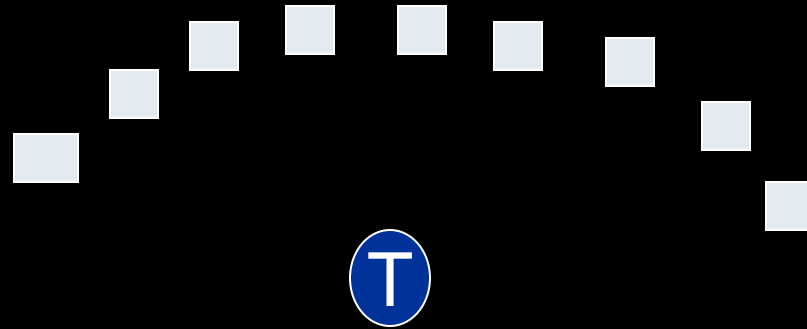
John Edwards



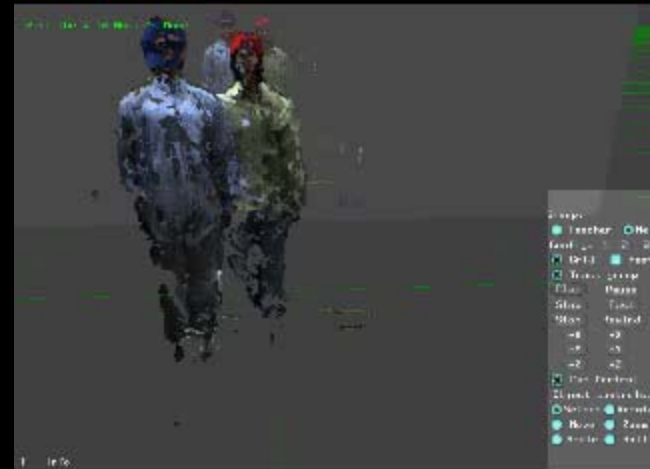
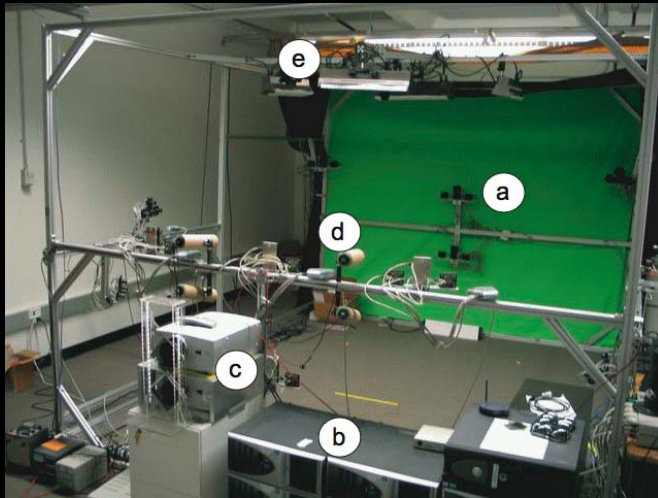
Morph
(35% Subject, 65% Edwards)

TSI in VR: Transforming Social- Sensory Abilities

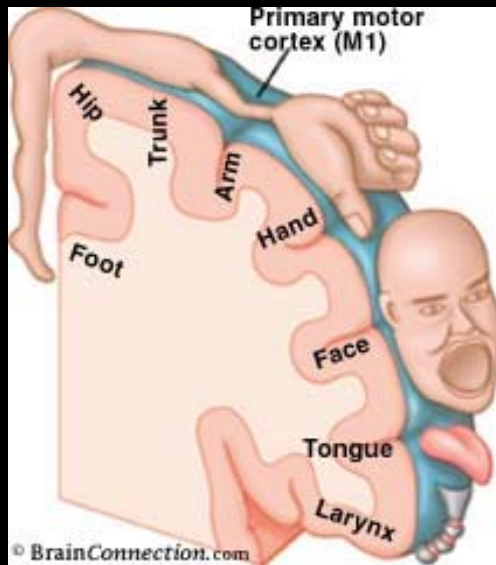
Transforming Social Perception



Transforming Proxemics: Sharing Body Space



TSI: Homuncular Flexibility

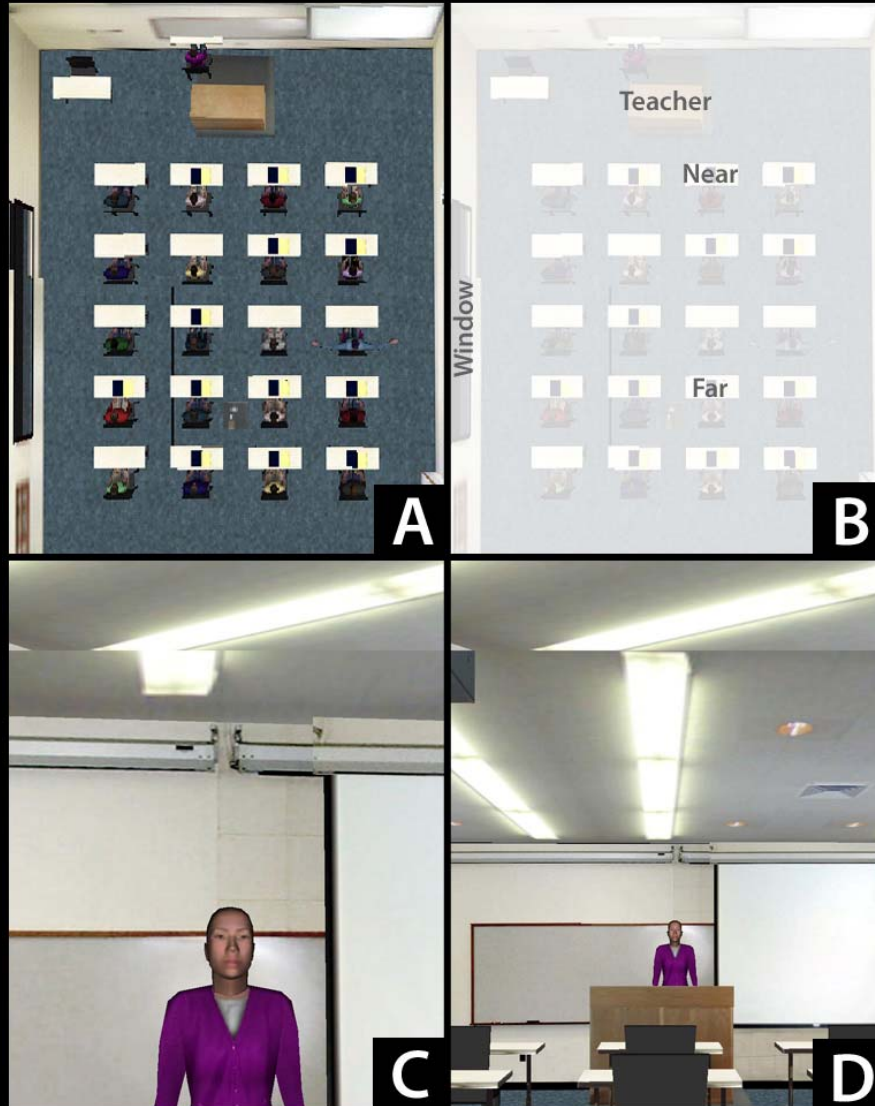


TSI : Transforming Social Context

Space

Time

Learning: Transformed Proximity: Distance



TSI : Transformed Conformity



Ethics



Virtual and Physical Identity Cues

Looks Like Me?

Yes

No

Yes

Avatar

?

Behaves
Like
Me?

No

?

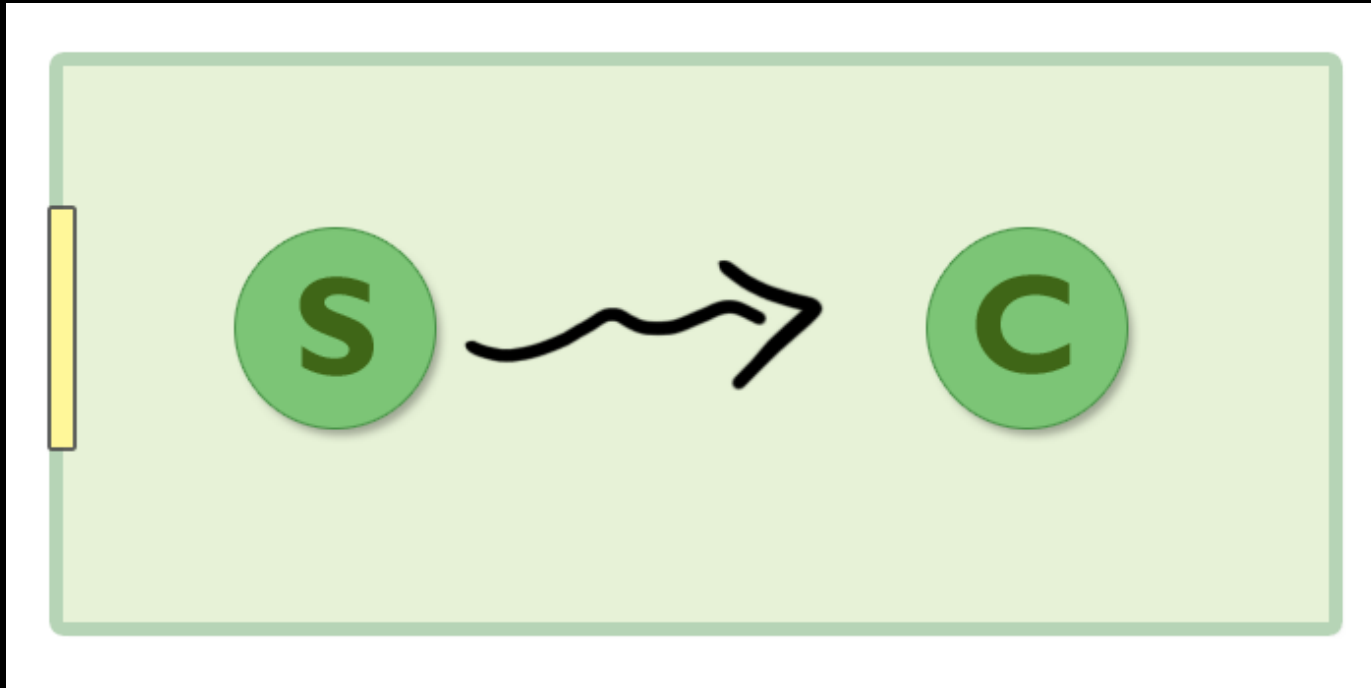
Agent

The Proteus Effect

A stranger in the virtual mirror



A Stranger in the Virtual Mirror



Identity Cues (Proteus Effect)

- Attractiveness (Yee, 2006, 2007)
- Height (Yee, 2006, 2007)
- Age (Yee, 2006, Ernst-Hersfeld, 2008)
- Race (Groom, 2007)

Transfer

- Naturalistic Settings (Yee, 2007)
 - online games
- Extends to face-to-face!

Veja Du

(feels like I've never been here before)

Behavior
Modeling
(Fox, 2007)



False Memories?
(Rickertsen, 2007)



Product Spokesperson?
(Ahn, 2008)

Conclusions

- The digital world is a wonderful and scary place
- TSI both effective and hard to detect
- TSI may have drastic implications on Computer Mediated-Communication



Thank you!

Virtual Human Interaction Lab
<http://vhil.stanford.edu>

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