**KNIGHTS OF THE ROUND TABLE**

Why sit in a circle?  
Every voice is equal.

**ANY SPACE HAS INHERENT HUMAN RELATIONS EMBEDDED**

Not every voice is equally "equal".  Why sit in a circle?

**WHICH AD DO YOU VIEW MORE FAVORABLY?**

Angular arrangement: self-oriented ads more favorable

Circular arrangement: family-based ads more favorable

**HUMAN PERCEPTION AND BEHAVIOR ARE SHAPED BY SPACE**

Angular arrangement: self-oriented ads more favorable

Circular arrangement: family-based ads more favorable

**OVERT VS IMPLICIT INFLUENCE**

Overt influence:  
Chair location, gestures

Implicit influence:  
Chair location, arrangement

**IMPLICIT INFLUENCE: SPATIAL ARRANGEMENT**

Can we affect human perceptual attention by rearranging chairs in a scene?

Does rearrangement give people new ideas about what the space is for, and what is possible in it?
SPATIAL ARRANGEMENT INFLUENCES HUMAN PERCEPTION

“Lecture, talk, movie, presentation.” “Discussion, chat, social, meeting.”

RAYLC.ORG

SPATIAL ARRANGEMENT INFLUENCES HUMAN PERCEPTION

RAYLC.ORG

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745
table:circular-table:aligned 0.8919849
tv:circular-table:aligned 1.0000000
table:semi-table:aligned 0.9989179
tv:semi-table:aligned 0.9952656
table:circular-tv:aligned 0.0682029
tv:circular-tv:aligned 0.0045019
table:semi-tv:aligned 0.0118714
tv:semi-tv:aligned 0.0172216
tv:circular-table:circular 0.9045863
table:semi-table:circular 0.9823698
tv:semi-table:circular 0.9936055

table:semi-tv:circular 0.9993178
tv:semi-tv:circular 0.9965766
tv:semi-table:semi 0.9999926

ARRANGEMENT ANALYSIS

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745
table:circular-table:aligned 0.8919849
tv:circular-table:aligned 1.0000000
table:semi-table:aligned 0.9989179
tv:semi-table:aligned 0.9952656
table:circular-tv:aligned 0.0682029
tv:circular-tv:aligned 0.0045019
table:semi-tv:aligned 0.0118714
tv:semi-tv:aligned 0.0172216
tv:circular-table:circular 0.9045863

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745

MULTIPLE COMPARISONS

tv:aligned-table:aligned 0.0040745
GESTURES ANALYSIS

affects person most:
"Let's Go," "I am Occupied," "Stop Moving"

responsive to person most:
"Understand," "Let's Help Out," "Tracking You"

high on both, satisfactory relationship:
"I am Available," "Let's Help Out"

Expressive correlates with Responsive
R² = 0.5657

High on responsive, low on affect:
"Tracking You"

LC, Friedman, Zamfirescu-Pereira, Ju, 2020

OVERT GESTURES

ARRANGEMENTS

ALIGNED CONTEXT

CIRCULAR CONTEXT

"TRACKING YOU" IN VR

a simple rotation-based gesture

how does it affect people in different contexts?

VR ANALYSIS

People significantly more stunned by
"Tracking You" in chair-aligned situation.

Proportion of variance explained most by
Config (0.077) as opposed to Question (0.036) and Config:Question (0.030).

Aligned:
"meeting room?", "lecture?", "staring at me?", "what if overwhelming number?"

Circular:
"chairs are barriers", "waiting area", "place of study", "chairs are my audience"
AGENTS OF SPATIAL INFLUENCE

Audience response depends on chair arrangement and particular gesture in VR.

VR BAL: ML-BASED VR THERAPY FOR STUTTERING

As told to RAY LC, with YUKA FUJIIKOA et al.

SPEECH DISORDERS ARE DEBILITATING

Social stress, interview, speeches, meetings, 70 million sufferers worldwide.

THERAPIES ARE EXPENSIVE, TIME-CONSUMING, HARD TO FIND

What takes place here... is supposed to... mimic what happens here.

SOLUTION: VIRTUAL REALITY + MACHINE LEARNING

VR (context), Machine Learning (customized), Therapy (get better).
ITERATIVE SYSTEMATIC DESENSITIZATION

INTRO RELAXATION

USER TEST STUTTERERS
National Stuttering Association NYC Chapter
40 user tests
Survey reduced anxiety by 30%
80% of users want to incorporate routine

USER TEST DETERMINING STRESS
GSR (perspiration) sensor
anxiety level during test
Incorporate into ML model

WEAVABLE TECH: GESTURE-BASED ANXIETY SENSORS
as told to RAY LC, with CHANEL LUU
Exposure doesn’t address intrinsic motivation.

Need implicit rewards as “relief” [prediction error].
ESCAPE: 360 EVACUATION TRAINING FOR THE ELDERLY

as told to RAY LC, MISO KIM, ERIN BRENNEMAN, and XINYUN CHEN

WINDBOW [SOCIAL] OPPORTUNITY

as told to RAY LC, MISO KIM, VALERIA RAMDIN, and BEYZA SAHIN GUN

SOCIAL DISTANCING FOR COVID-19 AND THE ELDERLY

social isolation susceptibilities:
- diabetes
- hypertension
- heart disease
- kidney disease
- liver disease
- cancer
- arthritis
- emphysema
- asthma

SOCIAL DISTANCING FOR COVID-19 AND THE ELDERLY

CREATIVITY ENHANCES WELL-BEING

mental and physical play
drawing improves PD
digital dance with relatives
SOCIAL CONNECTION BY INTERACTIVITY

- Common excursions to church, etc.
- Interactive table to eat together
- Virtual walk for exercise

ROUTINE SET BY MED REMINDERS, MONITORING, INTERESTS

- Handwashing reminder
- Telemedicine with caretaker
- Routine but not boredom

Support by:
- NYSCI Designer-in-Residence
- Parsons Provost Fellowship
- National Science Foundation
- Davis Peace Foundation
- Verizon Connected Futures

Acknowledgments:
- Aaliyah Alibar, Alejandro Baez, Stefanie Torossian
- Natalie Friedman, JD Zamfirescu
- Anika Ullah, Fabeha Monir
- Yuka Fukuoka, Chanel Lau

THANK YOU!