Breakout Session 1: Track A

Improving AI Alzheimer Researchers' Knowledge, Attitudes and Practices of AI Ethics

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Aims

Aim 1: Assess medical AI researchers' knowledge of and attitudes toward ethics in AI research

- Survey
- Focus Group

Aim 2: Create and evaluate a virtual reality-based, interactive AI ethics educational program

Focus Group: Methodology

- Two semi-structured focus groups conducted with Alzheimer's AI researchers (total n= 13).

- Semi-structured interview:
  - *Source and extent of their AI ethics knowledge*
  - *Ethical dilemmas/concerns in their current research*
  - *Suggestions on institutional support related to AI ethics*

- ***Preliminary*** content analysis conducted on recordings and transcripts to extract themes and initial impressions with a four-member research team. Have met to review codebook and emerging constructs.

Participants Demographics

Participants are involved in Alzheimer-related AI research in the following ways: ***Research faculty*** (n=5), ***graduate student*** (n=6), ***research assistant*** (n=2), and ***unspecified*** (n=1)

Focus group participants represented 5 academic institutes from different regions across the USA

AI research domains:

- Disease or surgery outcomes prediction
- Prediction and optimization of treatment
- Analysis of electronic medical records or diagnostic images (MRI, X-ray)
- Genetic analysis and genotype-phenotype correlation
- AI in counselling and behavioral health
- AI in digital health and clinical trials

Findings I

AI knowledge Acquisition

- Journal submission guidelines or peer review feedback
- Social media platforms and news
- Informal discussions with research supervisors
- Institutional Research processes (e.g., data access, IRB)
- Guest speaker seminars/workshops

Concerning Ethical Research Encounters:

- Fabrication of data & the use of ChatGPT
- Bias and underrepresentation of datapoints in training datasets
- Data security and risks of privacy breach
- Danger of commercialization of AI technologies & limited regulations

Findings II

Perceptions of Ethical Encounters

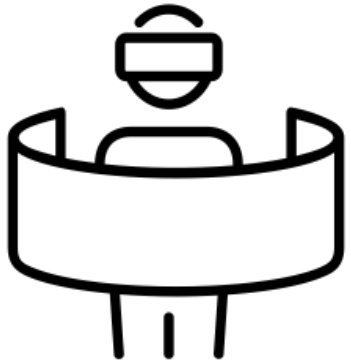
- Obstacle to work productivity and quality rather than as an ethical issue
- Inconsistencies between perceptions of data scientists/developers and physicians
- Most responses were concerned with accuracy of clinical notes and errors
- Issues of representation for patients and physicians (uncertainty)
- Leakage of patient data
- Timing to evaluate technology

Institutional Support

- Multi-institutional collaboration to enhance training data and mitigate bias
- Protocols and/or checklists on ethical research conduct within institutions
- IRB or regulatory committee involvement of AI ethics expertise to enhance regulation and adherence to best-practices (a uniformed approach)
- Participation in ethics groups and consortiums
- Information and access to guidelines

VR Program for Medical AI Education

Benefits of VR in Education/Training

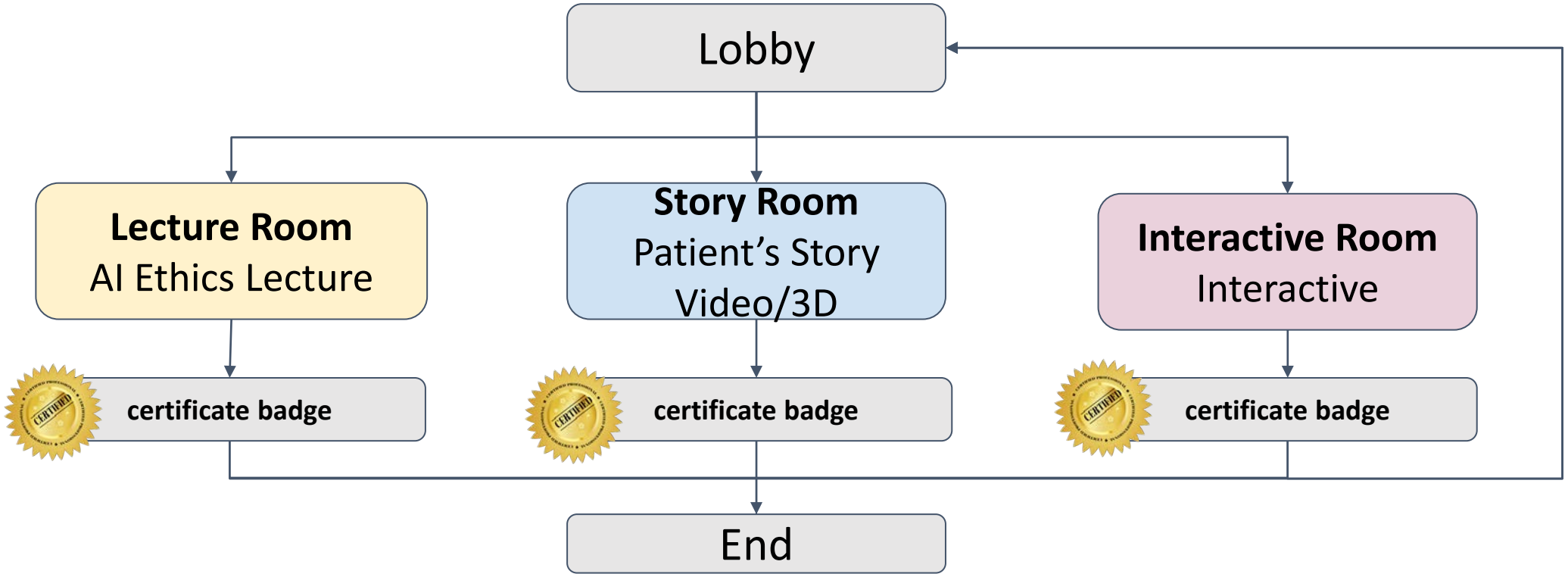


VR elicits immersion and compassionate feelings

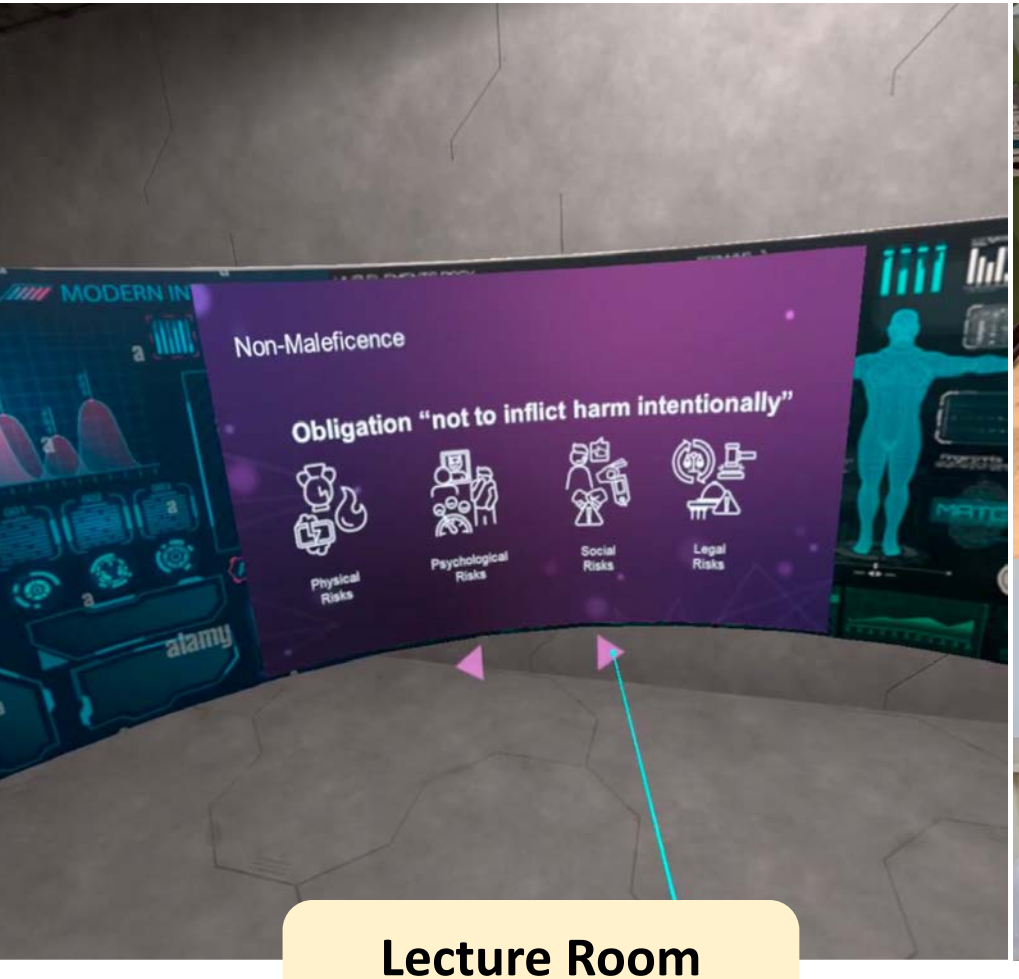
Support a wide range of activities.

Becoming popular in **training**, **education** and **entertainment** due to VR's **interactive** and **embodied experiences**.

AI Ethics VR Structure



AI Ethics VR



Lecture Room
AI Ethics Lecture

Story Room
Patient's Story:
3D/Video

Interactive Room
Interactive

Conclusion

- Understand what medical AI researchers know and what they think of medical AI ethics
- Create an immersive VR educational program for medical AI education
- Road ahead:
  - Test the usability and effectiveness of VR program
  - Try to recruit more participants for the survey

Publications

Zou, W. , Li, J. , Yang, Y., & **Tang, L.** (2023). Exploring the early adoption of Open AI among laypeople and technical professionals: An analysis of Twitter conversations on ChatGPT and GPT-3. *International Journal of Human-Computer Interaction.* DOI: 10.1080/10447318.2023.2295725

Tang, L., Li, J., & Fantus, S. (2023). Medical AI ethics: A systematic review of empirical studies. *Digital Health, 9*. https://doi.org/10.1177/20552076231186064