Title of the Talk: Gazing into the Future: Exploring Recent Trends in Eye Tracking and their Impact on Extended Reality and Privacy

Abstract: Recent developments in computer graphics, hardware technology, and machine learning enable pervasive eye tracking and its applications – e.g., gaze-based interaction, foveated rendering, and assistive technologies in stationary and highly mobile settings. Based on the viewed stimulus, it is possible to infer plenty of different information by using human eye movements and visual scanning patterns, for instance, activities, health status, or expertise, to count a few. Such inferences include privacy risks that have not been studied extensively. This talk will introduce the basics of eye tracking, its applications, including those in extended reality, and its use in different domains. Then, possible privacy risks, as well as existing and potential solutions, will be discussed. Lastly, reflections from user privacy concerns toward such setups will be examined.

Date: Friday, March 8, 2024

Time: 11:00 A.M – 12:00 Noon

Location: Via Zoom / Virtual

Number Of Participants: 81

Biography: Efe Bozkir is a postdoctoral researcher at the Technical University of Munich and the University of Tübingen, Germany. He obtained his Ph.D. in Computer Science in 2022 from the University of Tübingen, where he worked at the Chair for Human-Computer Interaction. Following his Ph.D., he conducted research on usable privacy and security at CyLab Security and Privacy Institute of Carnegie Mellon University between August 2022 and January 2023 as a visiting postdoctoral researcher, and he was supported by the Cluster of Excellence – Machine Learning for Science. Before those, he received his M.Sc. and B.Sc. degrees from the Technical University of Munich and Istanbul Technical University in 2016 and 2014, respectively. His research revolves around eye tracking, human-computer interaction, extended reality, machine learning, and privacy, focusing on computational techniques and human factors.

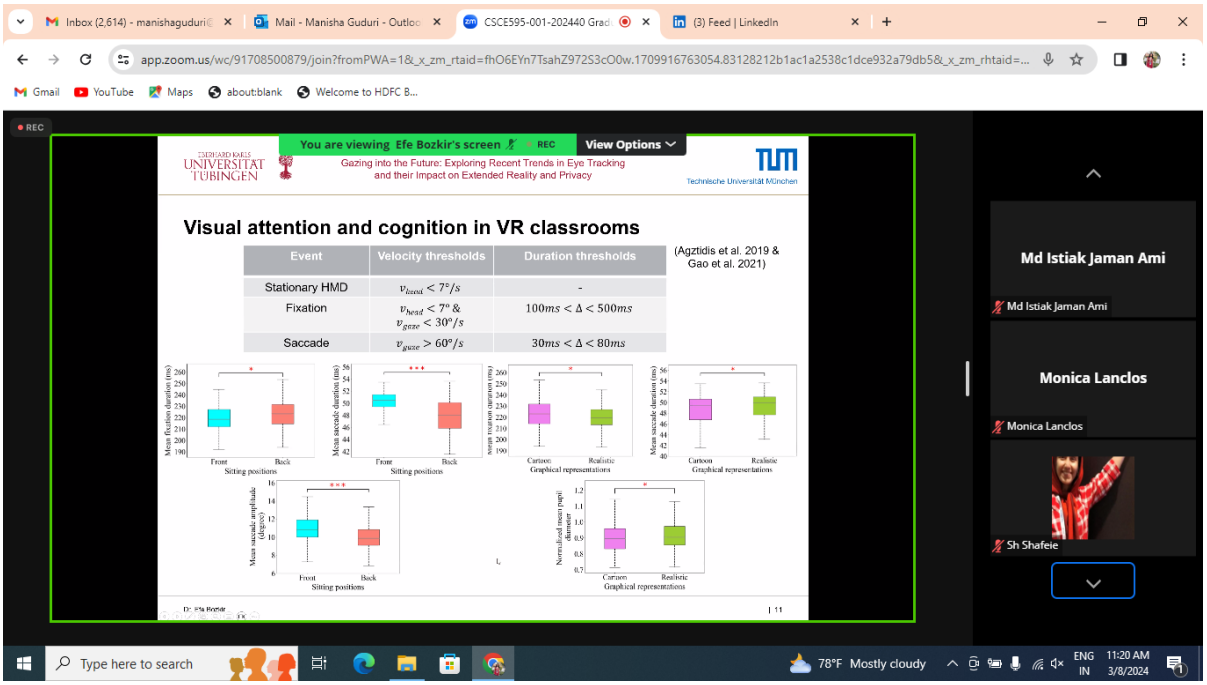
Zoom Meeting: https://ullafayette.zoom.us/j/91708500879

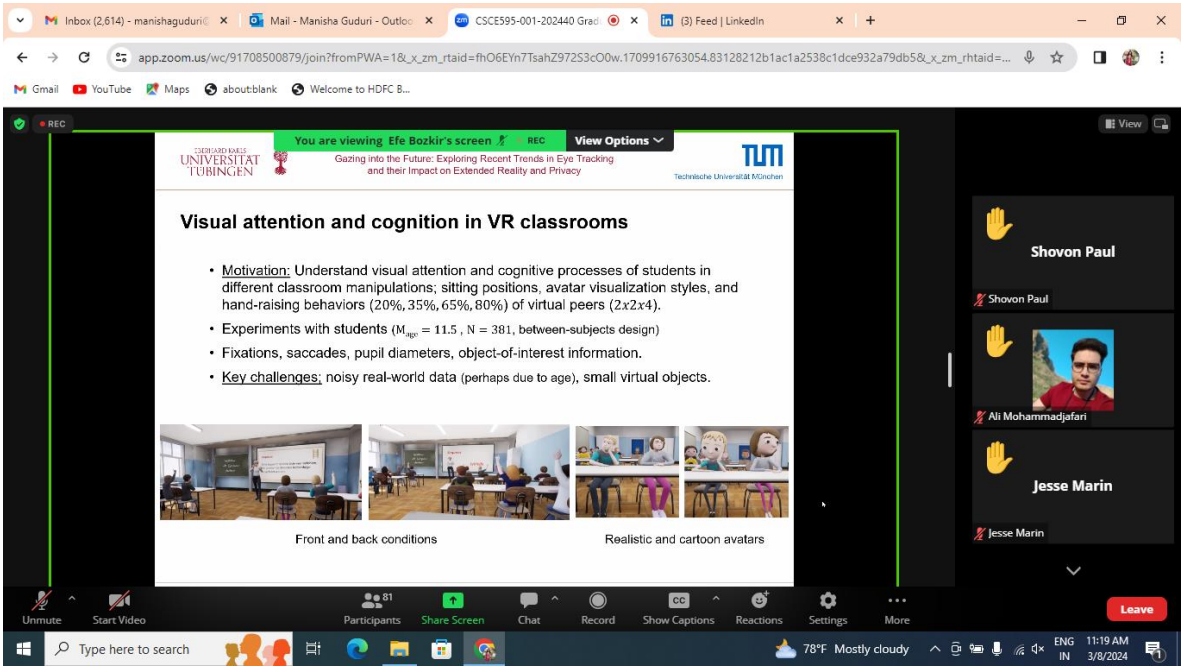
Objective of the talk: The objective of this talk is to explore the recent trends in Eye tracking and its applications, including in extended reality and its use in various domains.

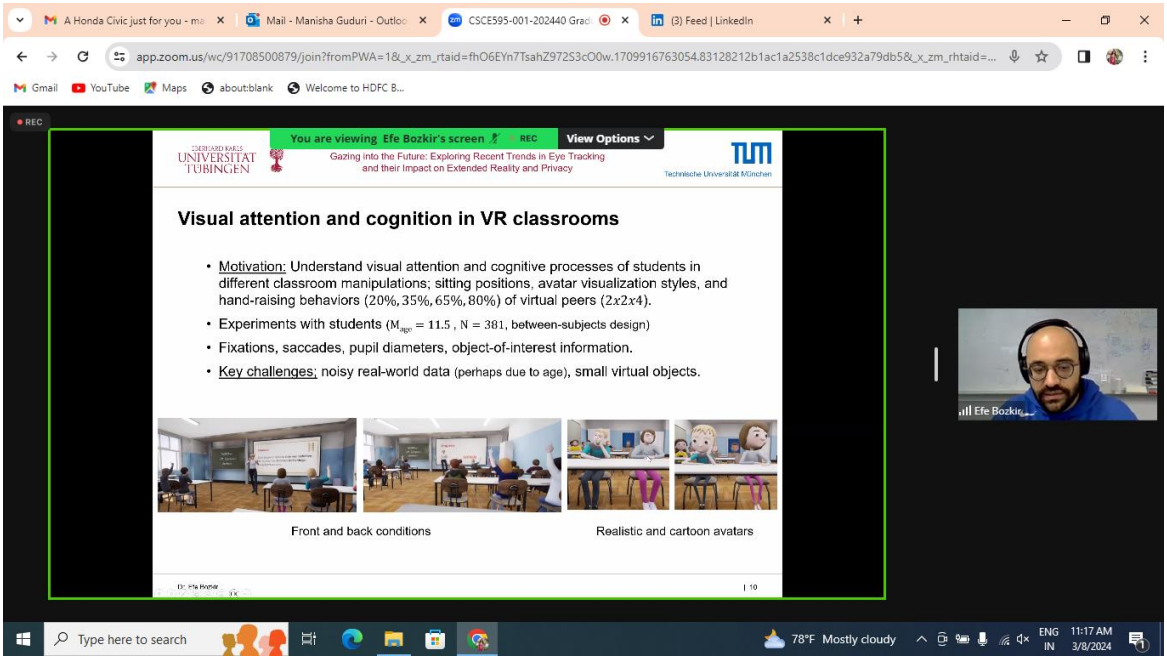
Summary: Today's seminar is conducted by Dr. Efe Bozkir about the recent developments in eye tracking and its Impact on Extended Reality and Privacy. In this seminar, he explained various contents focusing on Basics of eye tracking-which tells us what kind of data do we have to access to and eye movement detection, Possibilities including the ones in XR-mainly for authentication and human-wellbeing, Eye tracking in security and privacy applications, privacy-preserving eye tracking and understanding privacy concerns in eye-tracked augmented reality. He also explained about Differential privacy for eye tracking. He explained the FPA extensions with chunk-based CFPA and Difference-and chunk based FPA(DCFPA). Then Dr. Efe explained about privacy protection through laws. Privacy laws require usability which includes clear and plain language and should be concise and easily accessible.

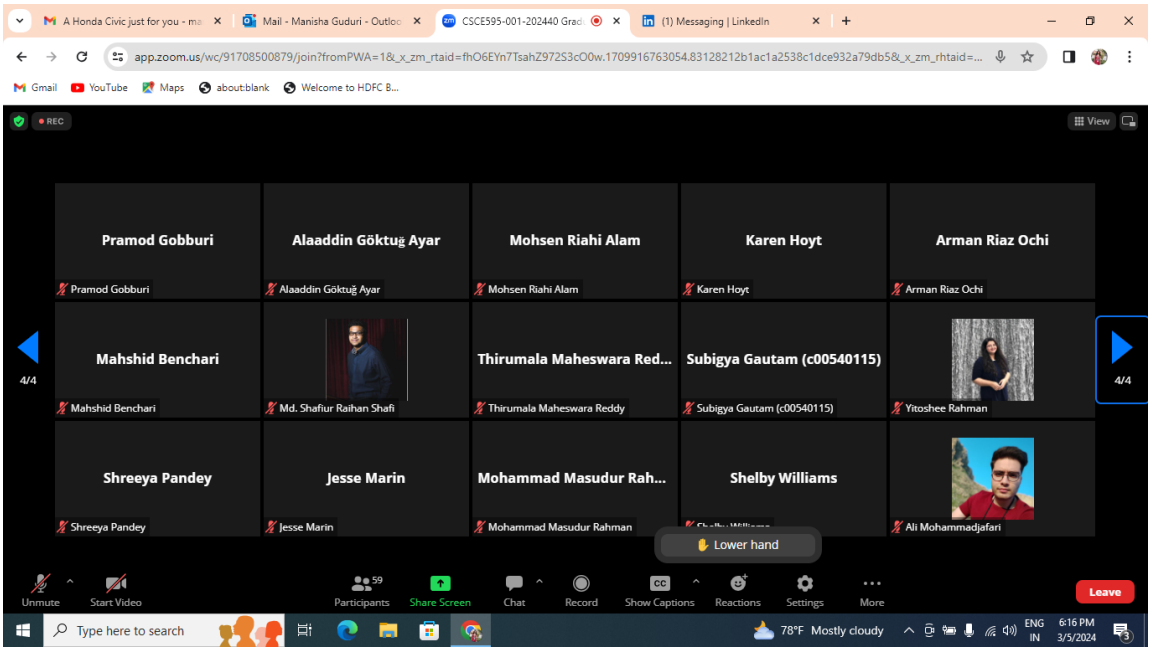
Outcome of the talk: This talk provided possible privacy risks, as well as existing and potential solutions regarding eye tracking and its applications.

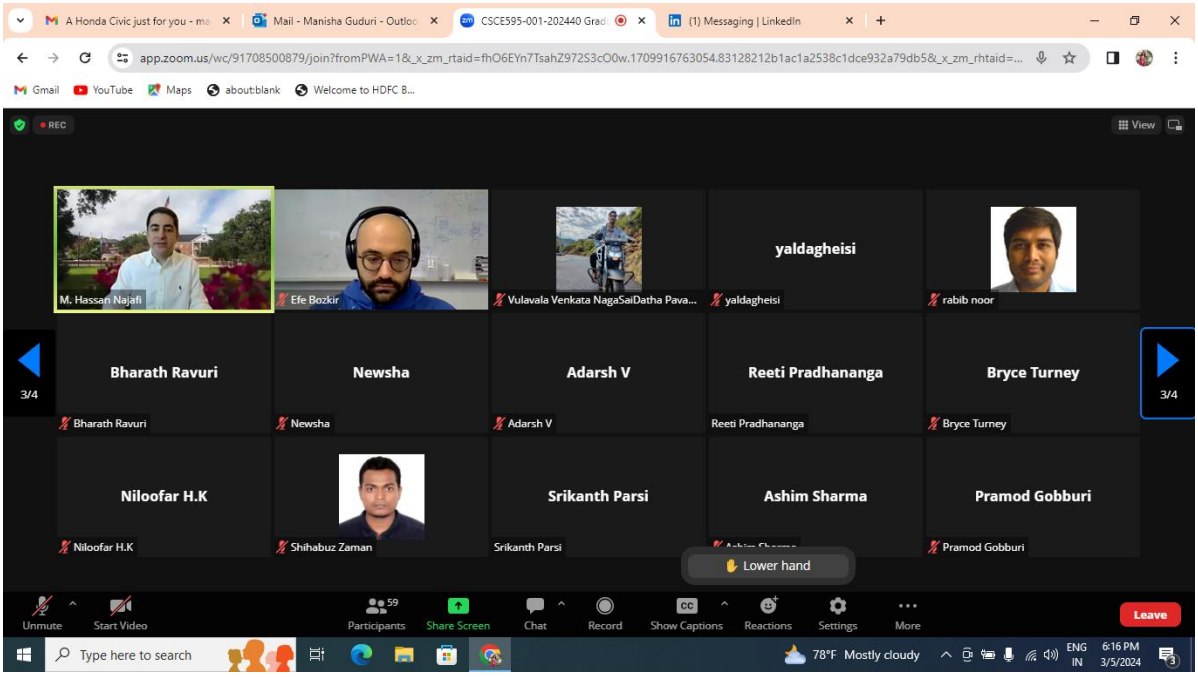
Glimpses of the talk:

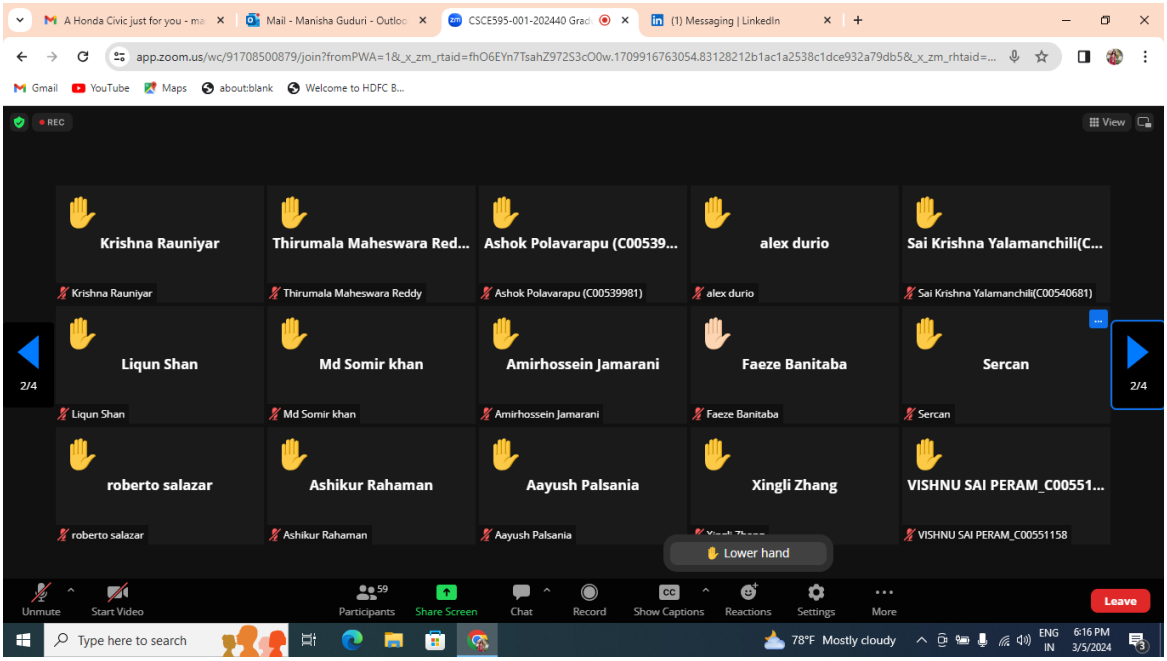


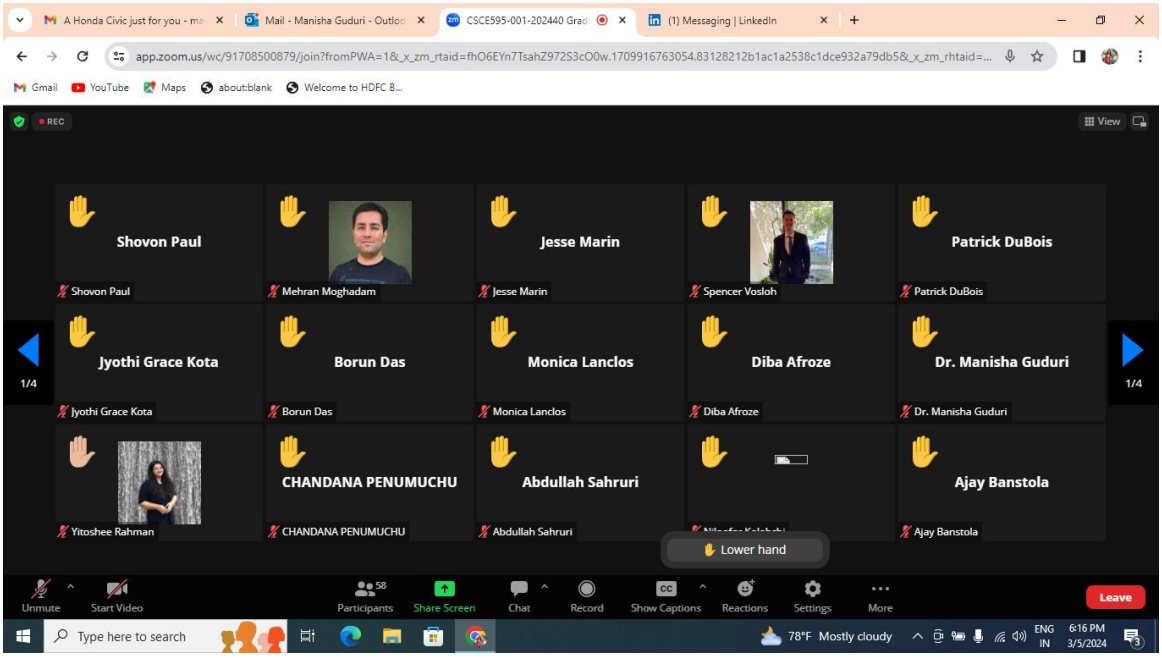



You are viewing Efe Bozkir's screen
View Options
Gazing into the Future: Exploring Recent Trends in Eye Tracking and their Impact on Extended Reality and Privacy
Visual attention and cognition in VR classrooms
Motivation: Understand visual attention and cognitive processes of students in different classroom manipulations; sitting positions, avatar visualization styles, and hand-raising behaviors (20%, 35%, 65%, 80%) of virtual peers (2x2x4).
Experiments with students (M_{age} = 11.5 , N = 381, between-subjects design)
Fixations, saccades, pupil diameters, object-of-interest information.
Key challenges: noisy real-world data (perhaps due to age), small virtual objects.
Front and back conditions
Realistic and cartoon avatars
Efe Bozkir
Type here to search
78°F Mostly cloudy
ENG IN 11:17 AM 3/8/2024


Pramod Gobburi
Alaaddin Göktuğ Ayar
Mohsen Riahi Alam
Karen Hoyt
Arman Riaz Ochi
Mahshid Benchari
Md. Shafiur Raihan Shafi
Thirumala Maheswara Red...
Subigya Gautam (c00540115)
Yitoshee Rahman
Shreeya Pandey
Jesse Marin
Mohammad Masudur Rah...
Shelby Williams
Ali Mohammadjafari
4/4
Lower hand
Unmute
Start Video
Participants
Share Screen
Chat
Record
Show Captions
Reactions
Settings
More
Leave
Type here to search
78°F Mostly cloudy
ENG IN 6:16 PM 3/5/2024


M. Hassan Najafi
Efe Bozkir
Vulavala Venkata NagaSaiDatha Pava...
yaldagheisi
rabib noor
Bharath Ravuri
Newsha
Adarsh V
Reeti Pradhananga
Bryce Turney
3/4
Niloofar H.K
Shihabuz Zaman
Srikanth Parsi
Ashim Sharma
Pramod Gobburi
Lower hand
Unmute
Start Video
Participants
Share Screen
Chat
Record
Show Captions
Reactions
Settings
More
Leave
Type here to search
78°F Mostly cloudy
ENG IN
6:16 PM 3/5/2024


Krishna Rauniyar
Thirumala Maheswara Red...
Ashok Polavarapu (C00539...
alex durio
Sai Krishna Yalamanchili(C...
2/4
Liqun Shan
Md Somir khan
Amirhossein Jamarani
Faeze Banitaba
Sercan
roberto salazar
Ashikur Rahaman
Aayush Palsania
Xingli Zhang
VISHNU SAI PERAM_C00551...
Lower hand
Unmute
Start Video
Participants
Share Screen
Chat
Record
Show Captions
Reactions
Settings
More
Leave
Type here to search
78°F Mostly cloudy
ENG IN
6:16 PM 3/5/2024


Shovon Paul
Mehran Moghadam
Jesse Marin
Spencer Vosloh
Patrick DuBois
Jyothi Grace Kota
Borun Das
Monica Lanclos
Diba Afroze
Dr. Manisha Guduri
1/4
1/4
Yitoshee Rahman
CHANDANA PENUMUCHU
Abdullah Sahruri
Ajay Banstola
Lower hand
Unmute
Start Video
Participants
Share Screen
Chat
Record
Show Captions
Reactions
Settings
More
Leave
Type here to search
78°F Mostly cloudy
ENG IN
6:16 PM 3/5/2024


REC
Efe Bozkir