Virtual Reality Brings Real Risks
Are we Ready?
What is Virtual Reality (VR)?

VR immerses users in a **fully artificial** digital environment

*Specs: Head Mounted Display, Heavy (GPU) Computing, Touch Controllers, Motion Sensors*
What is Social VR?
XR: Augmented vs Virtual vs Mixed Reality

VIRTUAL REALITY (VR)
- Fully artificial environment
- Full immersion in virtual environment

AUGMENTED REALITY (AR)
- Virtual objects overlaid on real-world environment
- The real world enhanced with digital objects

MIXED REALITY (MR)
- Virtual environment combined with real world
- Interact with both the real world and the virtual environment
How XR is changing our lives?
Explain Real Estate and Automotive. one in light blue only. make it clear u r choosing two

Kavya Pearlman, 1/25/2020
...and bringing new risks!

**PRIVACY**
With constant reality capture, how do we ensure privacy is accounted for?

**SECURITY**
What about the VR apps getting hacked? Are third party risks accounted for?

**TRUST**
In the era of deep fakes and propaganda, how can we be sure of individual identity in VR?
VIRTUAL REALITY ATTACKS
VR Attack Surface
VR Attack Surface

VR Attack Vectors

Novel attacks in VR

- Look where you are exactly (Tracker Attack)
- Remove your safety boundaries (Chaperone Attack)
- Move you wherever we want (Human Joystick Attack)
- Block your vision (Overlay Attack)

Tracker Attack

Turn on front facing camera
Stream video feed back to attacker

Look inside victim’s room
Even if cam disabled by the user

Chaperone Attack

Human Joystick Attack

Overlay Attack

New type of Ransomware?

Risk Mitigation Categories

Data Protection
Ensure I/O including data aggregated by system for use by third-party applications is properly stored and protected

User Interaction Protection
Users can share virtual environments, their interactions and information within the VE should be protected

Device Protection
Protecting the physical devices and their data.

@xrsidotorg
It begins...
XRSI - XR Safety Initiative

Our Mission:
Help Build Safe Immersive Environments

- XR Bug Bounty Program
- 3C Information Security Framework for XR Enterprises.
- Global Security Awareness Campaign via STOP.THINK.CONNECT.
3C Information Security Framework for XR enterprises

CREATE
- Virus, Worms, Keyloggers, Trojans, Intellectual Property Theft,
  Account Takeover, Malicious Game Servers, Software Vulnerability Exploitation

CONNECT
- Vandalism, Harassment, Stalking, Defamation, Disparagement, Spam,
  Social Engineering, Cyber Squatting, Avatar Identity Theft, Account Takeover,
  Privacy Risks, Risks to minors, Online disputes among users,
  Attack on users’ machine through game client

COMMERCE
- Payment fraud, Chargebacks, Pickpocketing, Begging, Transaction Integrity

Payment Card Industry – Data Security Standards (PCI-DSS), Sarbanes Oxley (SOX), GDPR,
State Regulations, International Regulations

To Be Released in Q2, 2020
WHAT CAN YOU DO?

HACK Extended Reality

bugbountyprogram@xrsi.org
Other Enquiries: info@xrsi.org