Remote Presence: Live Holograms for a Social Classroom

Tomi “bgt” Suovuo
Sebastian Hahta

3.2.2023

Beyond Video

Where might video and mixed reality be going next?

1. Our co-creation project
2. But why 3D video and holograms?
3. An overview of what we use

4. Demonstration…

Our Current Project
BIT::TIP

- **Academy of Finland** funded
  - Co-create immersive video solutions
  - 6th graders and teachers
- Study the impact on social classroom climate and the sense-of-presence
  - Improve support for the social aspect of distance learning
- Evolve an end-to-end 3D capture and streaming platform
  - Image stability and completeness
  - Data compression and latency over the internet

https://sites.utu.fi/bittip/

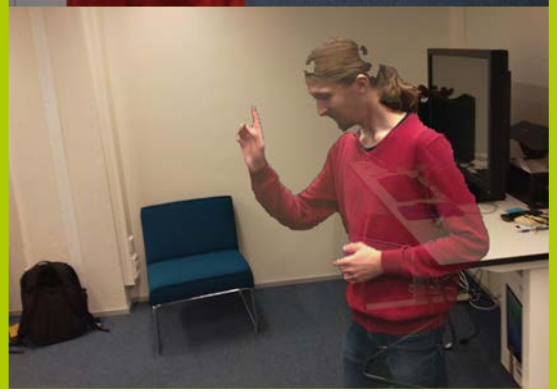
UNIVERSITY OF TURKU

Co-Creating

6th graders and teachers

UNIVERSITY OF TURKU

Holograms



- about 40ms latency excluding the network
- between 15 and 40 Mbit/s
- 30 frames per second
- Full HD resolution

UNIVERSITY OF TURKU

Our Technology

Hardware

Intel RealSense L515
Depth Camera

Microsoft Hololens 2
Headset

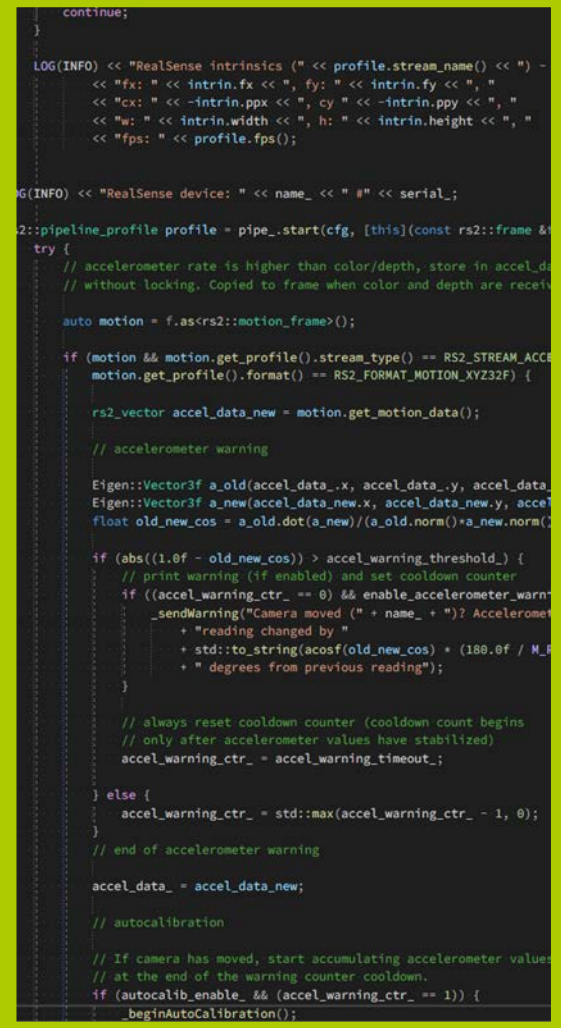
Dell XPS (GeForce RTX 2060)

UNIVERSITY OF TURKU

Our Technology

Software

- **Custom Capture, Rendering and Network**
- **Unreal Engine based application for HoloLens display**
- **Many Hololens and Mixed Reality features provided by Unreal Engine (touch interaction, 3D sound, user interfaces)**



UNIVERSITY OF TURKU

Demonstration…

UNIVERSITY
OF TURKU

UNIVERSITY
OF TURKU

Questions?