



Fachhochschule
Augsburg
University of
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MidiLens

An Augmented Reality Piano Learning System using HoloLens

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Course:
Course Instructor:
Submission:

Interaction Engineering (WS_17/18)
Prof. Dr. Michael Kipp
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[Motivation]

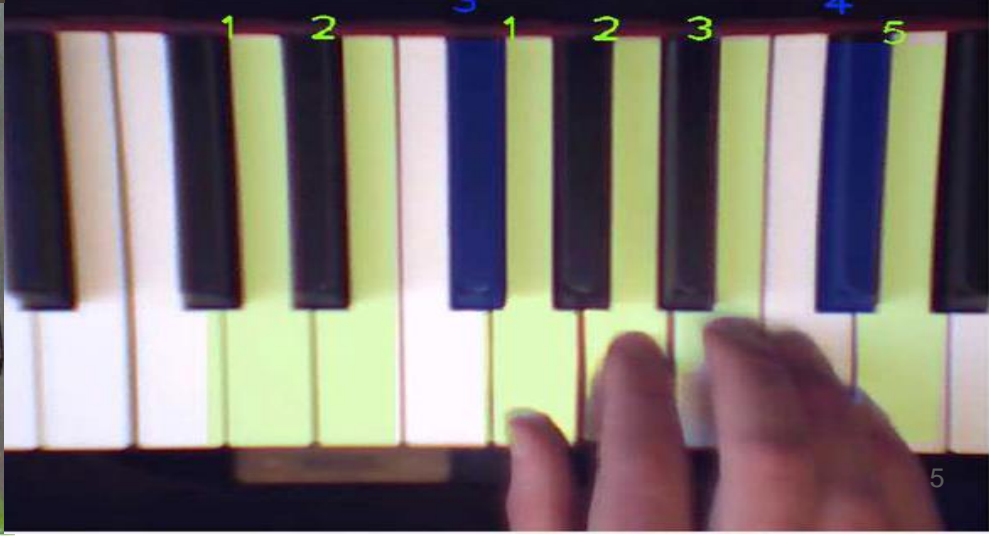
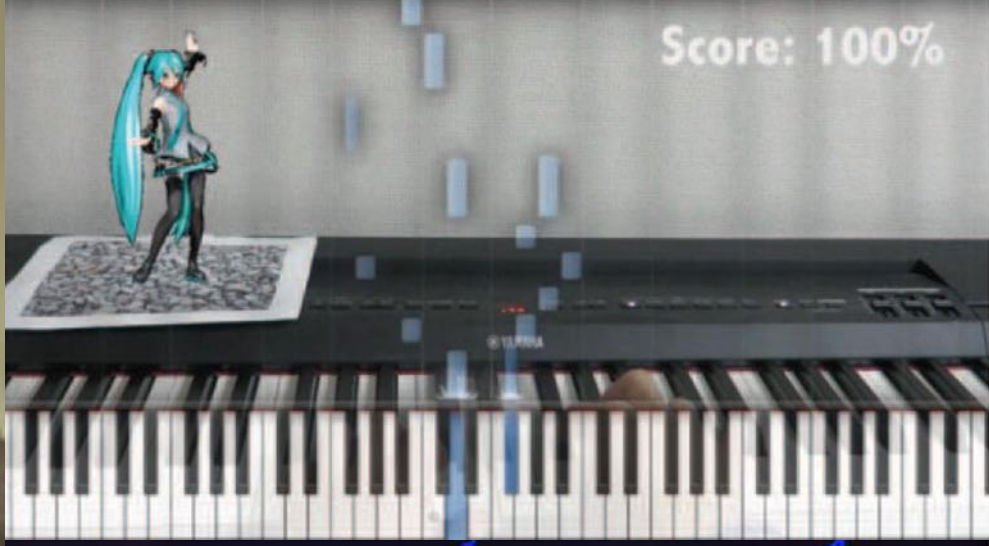
- **Simplify** musical training
- Make it **more effective** and **fun**
- **Motivate** more people to start playing music

[Idea]

Using **Augmented Reality** on a **Head Mounted Display (HMD)** for **music learning on a Piano!**



[Related Work]



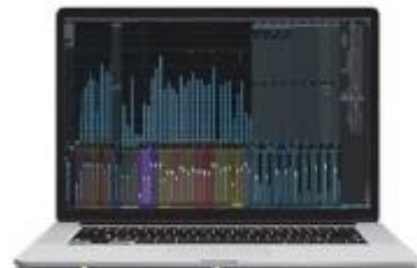
YAMAHA

Online

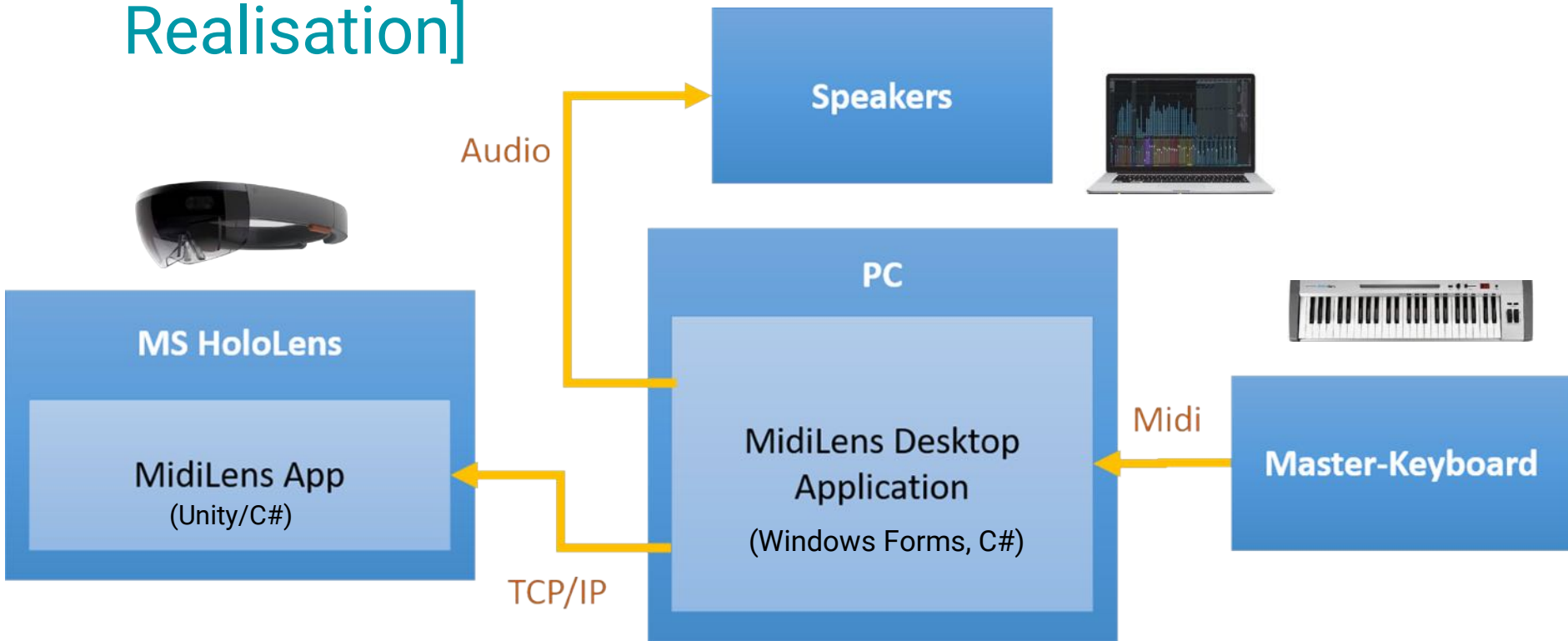


[Interaction Techniques]

- **Song Selection:** Mouse, Keyboard (PC)
- **Musical Input:** Classical Keyboard (Master-Keyboard)
- **HMD Application Control:** Speech, Gaze & Gesture (HoloLens)
- **Visual Output:** Augmented Reality on OST-Displays (HoloLens)
- **Auditory Output:** Speakers (PC)



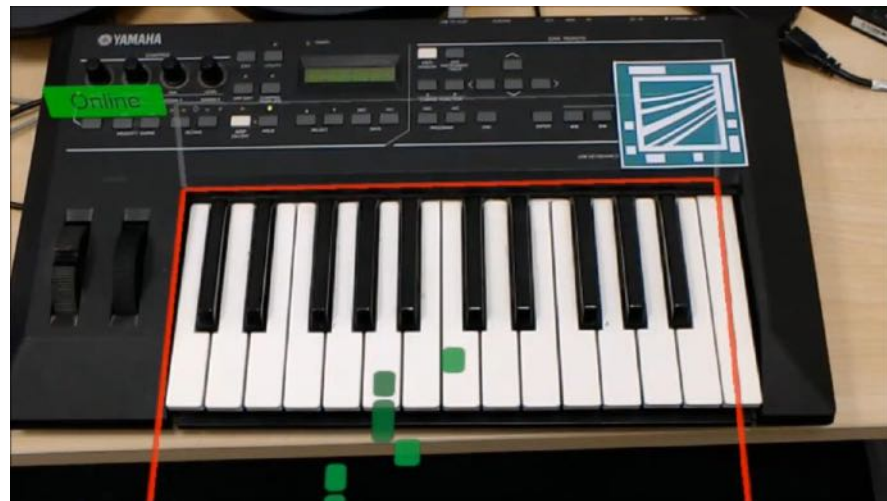
[Technical Realisation]



Learning Mode A



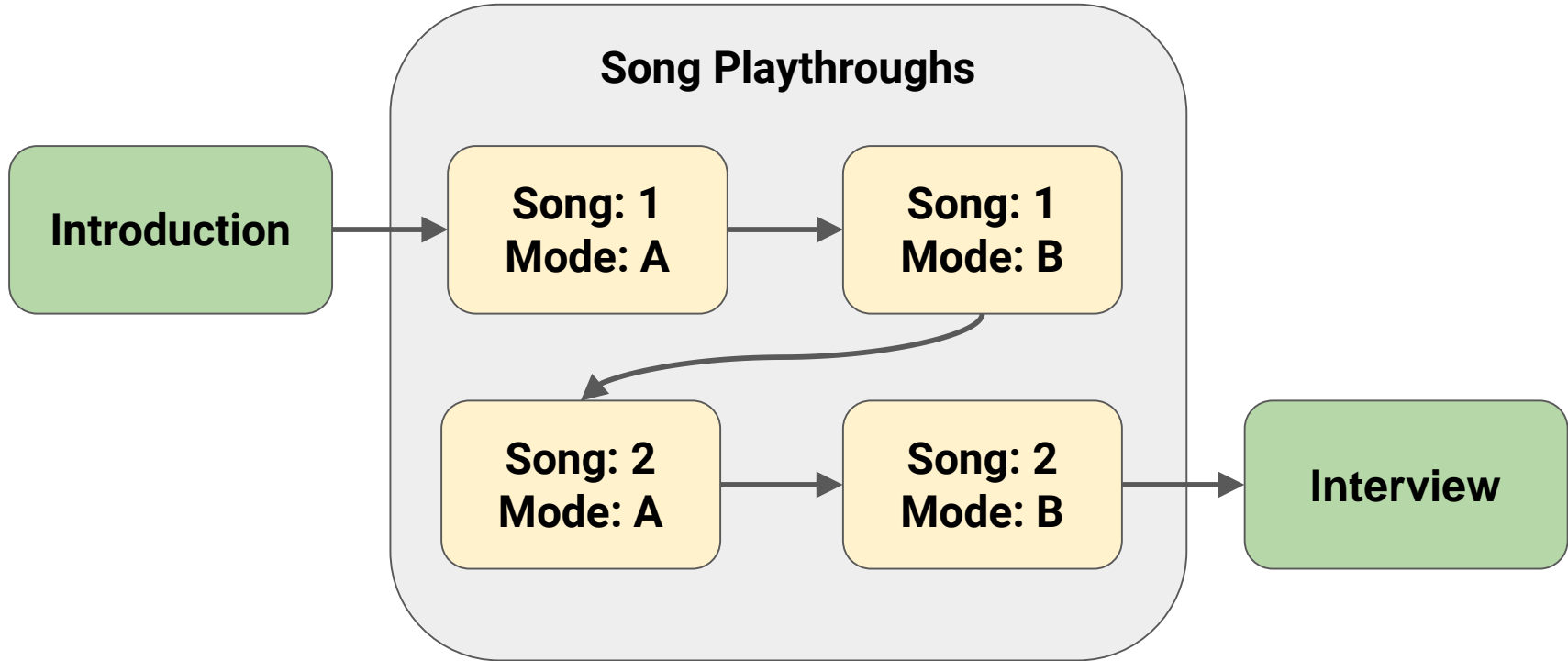
Learning Mode B



[User Tests]

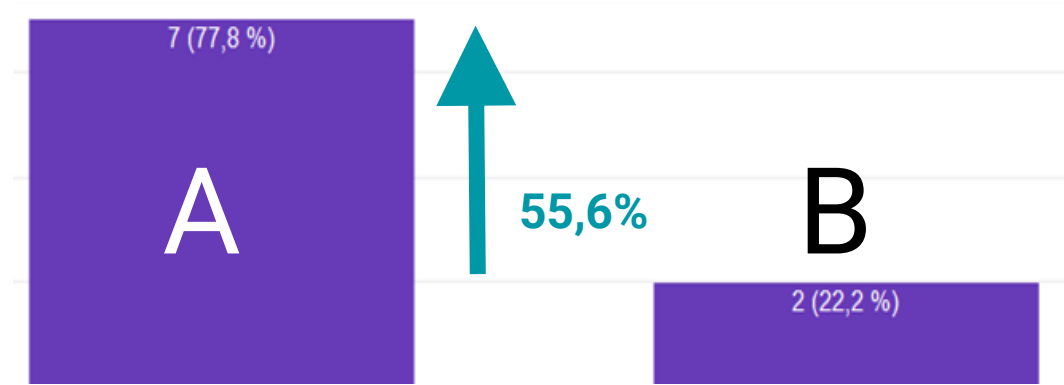


[Test Sequence]

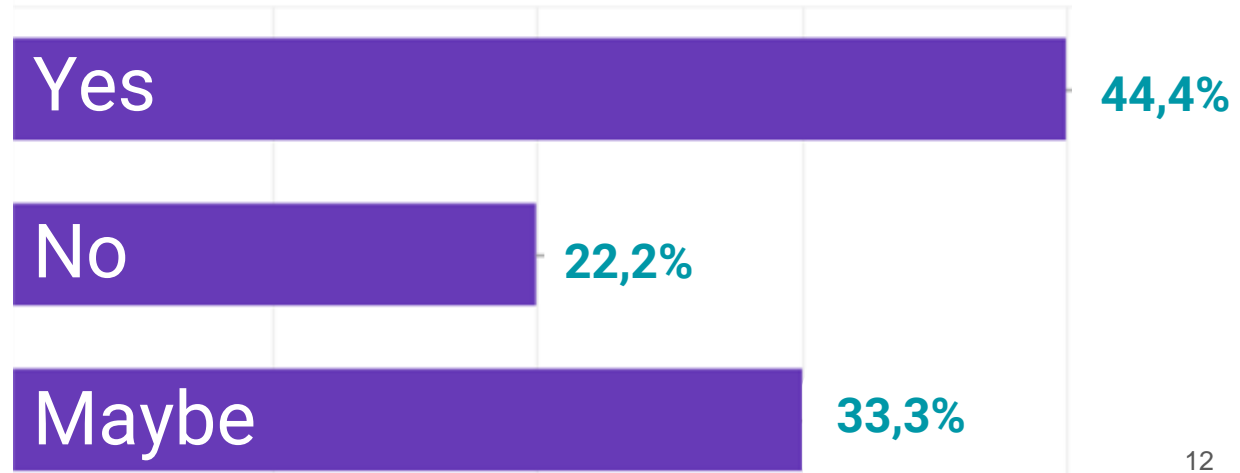


[Results]

Preferred **Mode**?



Potential for
excessive use?



[Live
Demo]

[Conclusion]

- Generally **positive feedback** (fun factor!)
- Preferred **Learning Mode: A**
- Positive effect on **skill development**
questionable
- **tracking precision** must improve

[Future Work]

- Gamification via **Score** and rising **difficulty**
- **Improve Reliability** with Midi over TCP/IP
- More **user studies** regarding **timing/precision**
- Add **finger positioning**

Thanks for
your attention!