TURKU GAME LAB

How to Apply AR and VR Technologies in Castles?

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TURKU UNIVERSITY OF APPLIED SCIENCES

Turun yliopisto
University of Turku

Turku Game Lab

- Working environment, shared by Turku University of Applied Sciences and the University of Turku since 2009
- Students from both the technical and artistic fields can meet and develop games together
  - New game developers graduating from the lab around 40 per year
- RDI focus: entertainment games, serious games and gamification
  - Projects such as Fast Wow Effects Boosting SME Business (446 k€, Tekes), Virtual Reality in Driving Inspection (328 k€, Tekes), Activage (382k€, H2020)
- Active cooperation with industry and other stake-holders


The Game Industry Of
FINLAND
5000

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Augmented Reality (AR) and Virtual Reality (VR) Technologies



Background – Starting Point

- Paris 3D Saga – state-of-the-art (2013)
  - http://www.youtube.com/watch?v=cqEf1SEk0nY



Background – Starting Point

- Kalajoki Times - an example of our previous studies in tourism
  - http://www.youtube.com/watch?v=_BnmgUQsCRo



Background – Virtual Reality

- Technology is ready for tourists
  - Roller Coaster Virtual Reality application in Helsinki
  - https://youtu.be/dgxGqDevl00



Background - Augmented Reality



http://www.youtube.com/watch?v=R9ha6JAL6fk&feature=youtu.be

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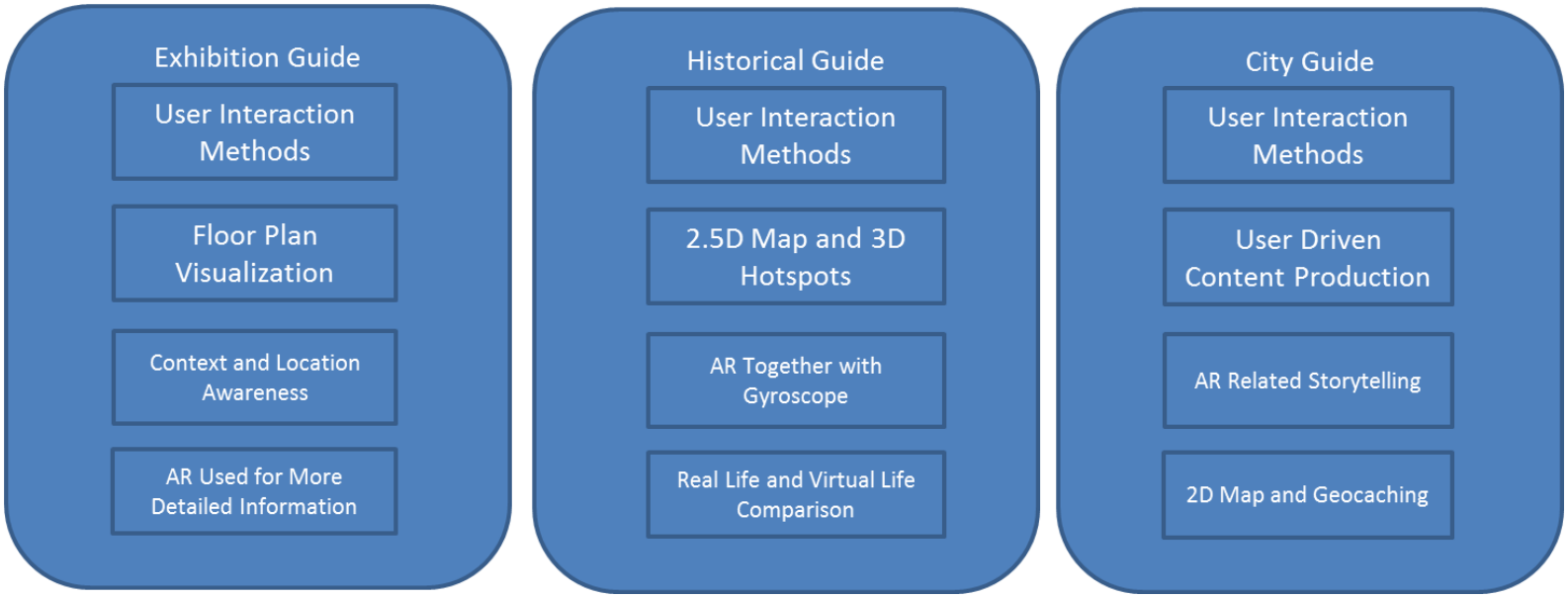
Wow Effects - Guidance

- Developing guidance platform which is scalable in different use cases



Wow Effects - Guidance

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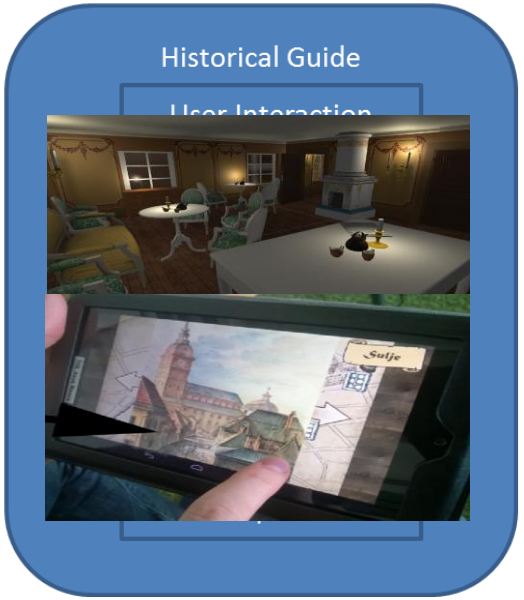
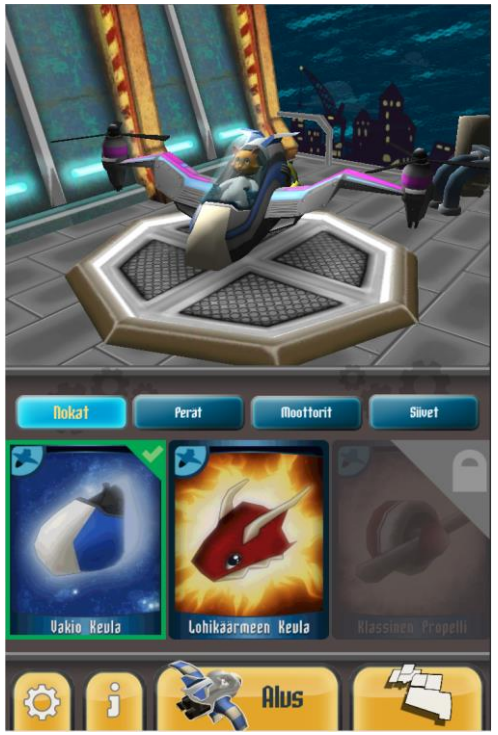




Wow Effects – Augmented Reality







Wow Effects – Augmented Reality

- Michael from Turku – Mikael Agricola game
  - Historical guide



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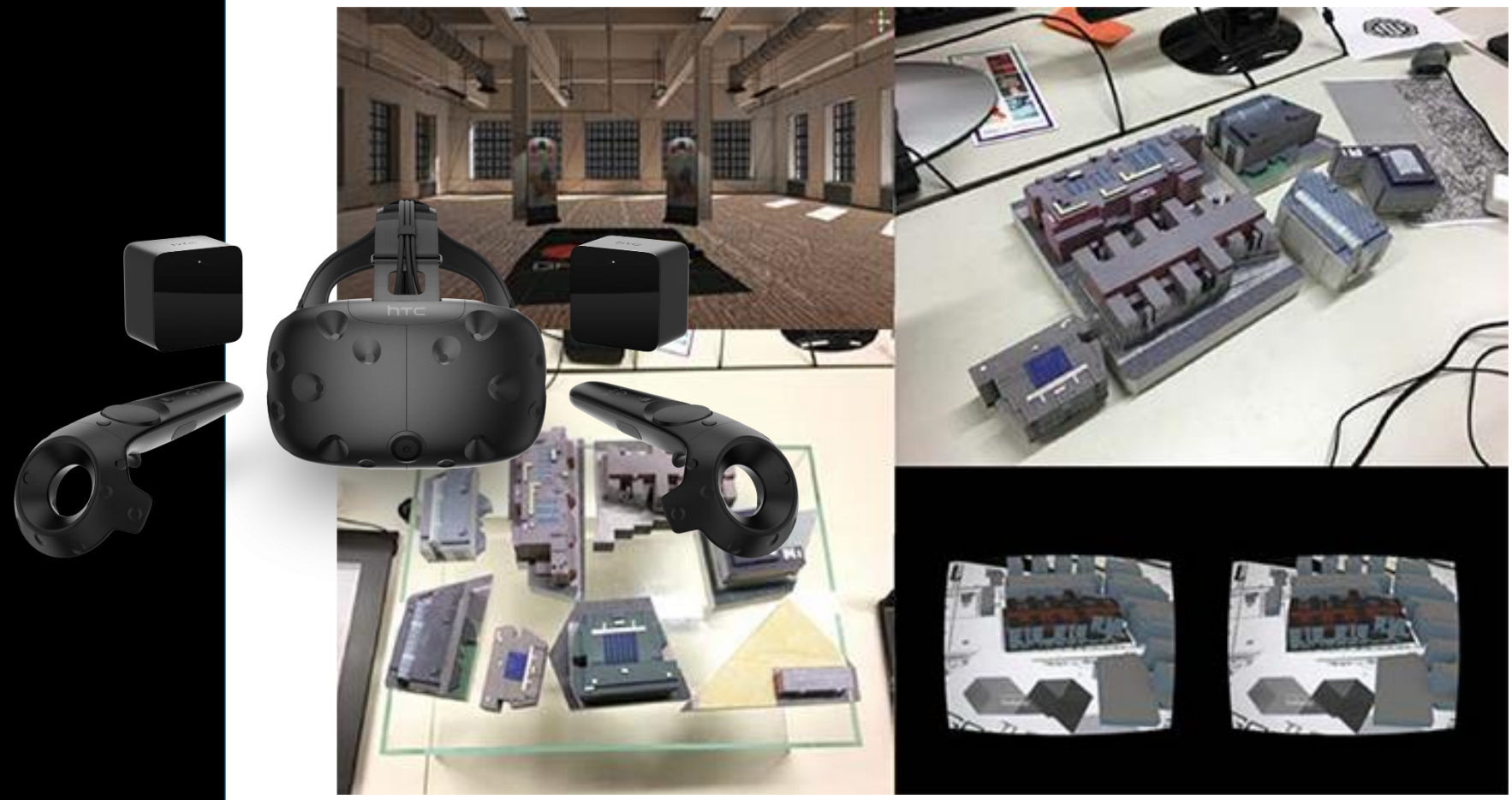
Wow Effects – Virtual Reality



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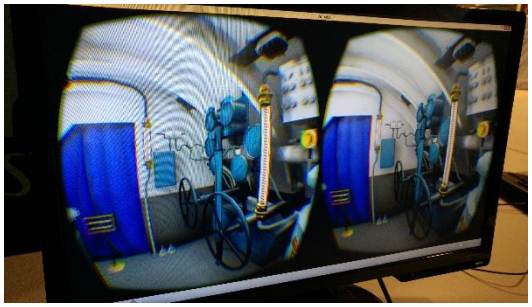
Wow Effects - Virtual Reality









More videos (video 1 & video 2)

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Tekes

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Technology Available for Castles



Turku Castle Application – Demo Available



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Turku Castle VR Application – Demo Available



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Turku Castle Box Application – Demo Available



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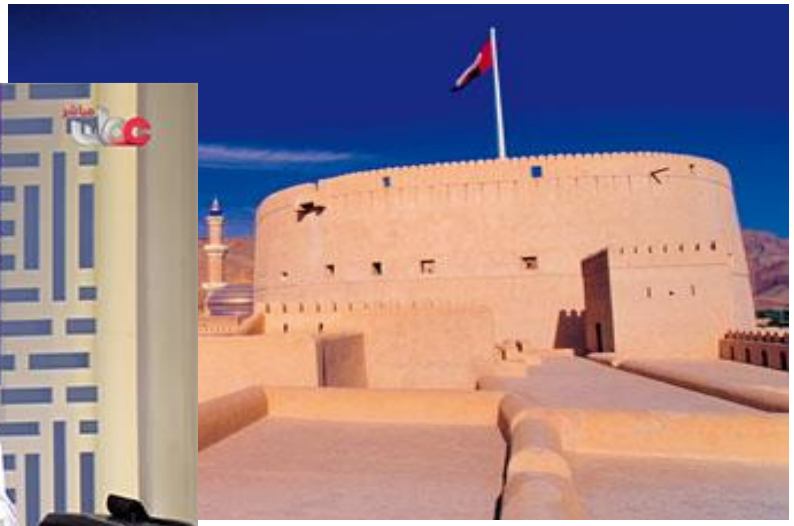
International Cooperation

- Relatively large research exchange program
  - testing guidance applications in several exhibitions in the Middle East





Selected Publications

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- Mäntylä, T., Lahti, I., Ketamo, H., Luimula, M., and Smed, J., (2014) Designing Reality Guides, In: Proceedings of the 6th International Conference on Virtual Worlds and Games for Serious Applications, (VS-Games 2014), Msida, Malta, pp. 69-76.
- Lahti, I., Rosin, T., Qvist, P., Vuorela, V., Luimula, M., and Smed, J. (2014) IndustrySim: Finding the Fun in Industrial Simulations, In: Proceedings of the 6th International Conference on Virtual Worlds and Games for Serious Applications, (VS-Games 2014), Msida, Malta, pp. 65-68.
- Besz, A., Gornicki, M., Luimula, M., and Smed, J. (2015) Wow Guidance Mobile Augmented Reality Game for Tourism and Entertainment. In: Proceedings of the Annual Augmented Reality Conference (ARea 2015), Turku, Finland, 11 p.
- Luimula, M., Suominen, T., and Pieskä, S. (2015) Utilizing the Synergic Combination of Art and Game Technologies in Engineering Applications, In: Proceedings of the 5th IEEE Conference on Cognitive Infocommunications, Gyor, Hungary, pp. 61-65.
- Luimula, M., Suominen, T., Roslöf, J., Pieskä, S., and Lehtiniemi, A. (2016) Innovation Generation Model – From Innovation Projects Towards RDI Project Consortiums and Business Ecosystems, In: Proceedings of the 12th International CDIO Conference (CDIO 2016), Turku, Finland, pp. 228-237.
- Pieskä, S., Luimula, M., and Suominen, S. (2016) Generating Wow Experiences with Small and Medium-sized Enterprises, In: Proceedings of International Symposium on Small-scale Intelligent Manufacturing Systems, Norway, 21-24, June, 6p.
- Bulatovic Trygg, N., and Luimula, M. (2016) Cultural Heritage in a Pocket - Case Study "Turku Castle in Your Hands", In: Proceedings of the 5th IEEE Conference on Cognitive Infocommunications, 8p.
- Qvist, P., Bulatovic Trygg, N., Luimula, M., Peltola, A., Suominen, T., Heikkinen, V., Tuominen, P., and Tuusvuori, O. (2016) Demo: Medieval Gastro Box – Utilizing VR Technologies in Immersive Tourism Experience, In: Proceedings of the 5th IEEE Conference on Cognitive Infocommunications, 2p.
- Pieskä, S., Luimula, M., Kaartinen, H., Qvist, P., Suominen, T., and Tuusvuori (2016) Multidisciplinary Wow Experiences Boosting SMEs, In: Proceedings of the 5th IEEE Conference on Cognitive Infocommunications, pp. 309-316.

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