Tuukka Takala | Email: tmtakala@gmail.com | www.linkedin.com/in/ttakala | github.com/ttakala

Resume

I have worked full-time with Augmented & Virtual Reality since 2007, designing and implementing AR and VR applications with my focus being on 3D user interfaces, computer graphics, and computer vision.

I have good connections within the international VR business and research communities, as I have regularly participated in VR conferences since 2011. I have taught a VR project course for 5 years in Aalto University, supervised 5 research assistants in two of my own projects, and acted as an instructor in 4 Master Theses (Kari Valde, Hannu Hartikainen, Mikael Matveinen, Niklas Juslin).

My VR-themed YouTube channel has gathered over 250,000 views.

Specialties: virtual reality, augmented reality, software engineering, Unity development, programming (C#, C/C++, Java), interaction design, computer vision.

Personal information

Name:	Takala, Tuukka
Gender:	male

Background

Born:	1982 in Finland
Nationality:	Finnish
Place of residence:	Finland

Languages

Native Finnish, fluent English, good Japanese, reasonable German, satisfactory Swedish.

Education

2017 Doctor of Science, Department of Computer Science, Aalto University.
Thesis: **A Toolkit for Virtual Reality Software Development**

2009 Master of Science in Technology, Department of Computer Science, Aalto University.
Thesis: **Optical Finger Tracking Using Color LEDs**
Grade average of all courses: 4.74 (max 5.0), graduated with honors.

Work experience

- 2020 – present day, visiting scholar at Waseda University.
- 2018 – 2020, JSPS Postdoctoral Fellow at Waseda University: working with VR research.
- 2017 – present day, advisor at Osgenic (startup creating a learning platform for surgeons).
- 2016 – present day, co-founder and board member of FIVR ry (Finnish Virtual Reality Association, a non-profit organization).
- 2015 – present day, visiting scholar at Aalto University.
- 2007 – 2015, researcher in Aalto University Department of Media Technology: working with VR development and related technologies, as well as doing teaching.

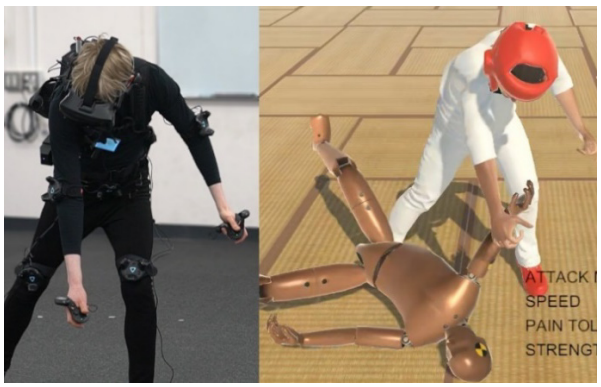
- 2006, research assistant: Summer job where I refactored the code of an existing virtual reality software platform at Helsinki University of Technology.
- 2005, research assistant: Summer job which included 3D model creation at Helsinki University of Technology.

Awards and acknowledgments

- 2018 JSPS Postdoctoral Fellowship grant for 2 years
- 2016 Co-wrote an application that secured a 250,000 € grant to Finnish VR association (FIVR).
- 2013 Received a 5,000 € grant from Nokia Foundation.
- 2013 Chosen to participate in Aalto Entrepreneurship Society's ThinkBIG, a paid 2-week trip to Silicon Valley with some of the brightest students in Finland.
- 2013 Received 5,000 € funding from Aalto University's Media Factory for my RUIS-project.
- 2013 Received a 10,000 € grant from The Research Foundation of Helsinki University of Technology.
- 2013 "Best low-cost solution" prize in the annual 3DUI contest at IEEE Symposium on 3D User Interfaces.
- 2012 Received a 40,000 € grant together with a colleague for an XP3D-UI research project.
- 2012 Received a 5,000 € grant from Emil Aaltonen foundation.
- 2011 Received a 7,000 € grant from Wihuri foundation.
- 2011 Received 20,000 € funding from Aalto University's Media Factory for my WeStyle-project.
- 2011 Received 13,000 € funding from Aalto University's Media Factory for my RUIS-project.
- 2010 Received a funded 4-year position in UCIT graduate school.
- 2005 3rd in Assembly'05 FastGFX competition.
- 2002 3rd in Assembly'02 Raytrace competition.
- 2001 1st in Assembly'01 Raytrace competition.

Assorted works

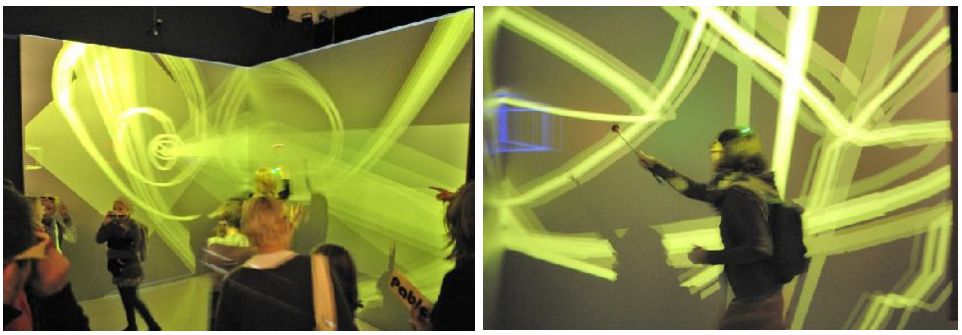
Reality-based User Interface System (RUIS), 2011-present, a platform that eases the adoption of VR avatars and other new interaction technology. In addition to my students, I have used RUIS to create several VR applications in different domains, e.g martial arts training.



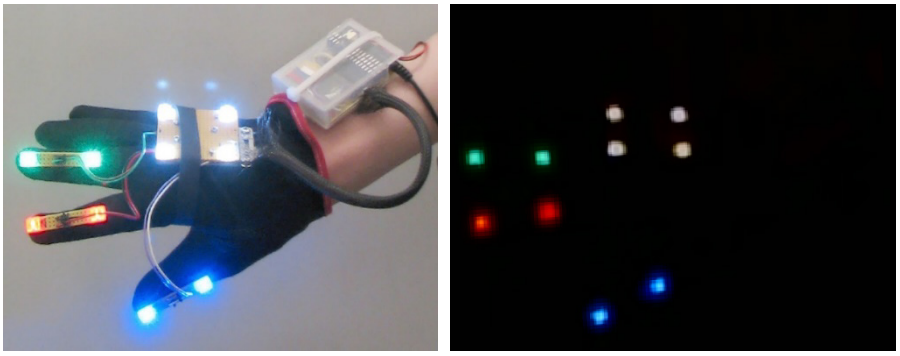
Tuukka Takala | Email: tmtakala@gmail.com | www.linkedin.com/in/ttakala | github.com/ttakala

Vertigo, 2015, an amusement park attraction delivered for a customer in India. This was a full-body tracked “walk the plank” -experience, where the user had to cross a plank in 30 seconds or risk falling down.

Picasso 3D Drawing, 2009, an attraction at Annantalo museum's Picasso exhibition: The user can draw 3D virtual shapes into air, and view his artwork with stereo-glasses. My optical motion tracker (see HandsOn project below) is at the heart of this application.



HandsOn, 2007-2009, joint project of HUT, TTY, TaiK: My role included research & development of an optical tracker that uses distributed computing, and building a marker glove for it.



3D Character Animation, 2008, an attraction at Science Center Heureka's exhibition: The user uses stereo-glasses to view a virtual character, which can be manipulated through a wand-like interaction device.

Tuukka Takala | Email: tmtakala@gmail.com | www.linkedin.com/in/ttakala | github.com/ttakala

Publications (first-authored)

All publications and citation counts can be found at my Google scholar profile.

- TM Takala, Y Hirao, H Morikawa, T Kawai
  Martial Arts Training in Virtual Reality with Full-body Tracking and Physically Simulated Opponents
  Virtual Reality and 3D User Interfaces (VR), IEEE, Atlanta, USA, March 22nd-26th, 2020.
- TM Takala, CC Hsin, T Kawai
  Stand-alone, Wearable System for Full Body VR Avatars: Towards Physics-based 3D Interaction
  Virtual Reality and 3D User Interfaces (VR), IEEE, Osaka, Japan, March 23rd-27th, 2019.
- TM Takala, H Heiskanen
  Auto-Scaled Full Body Avatars for Virtual Reality: Facilitating Interactive Virtual Body Modification
  Virtual Reality and 3D User Interfaces (VR), IEEE, Reutlingen, Germany, March 18th-22nd, 2018.
- TM Takala, L Malmi, R Pugliese, T Takala
  Empowering Students to Create Better Virtual Reality Applications: A Longitudinal Study of a VR Capstone Course
  Informatics in Education-An International Journal, 15 (2), pp 287-317, 2016.
- TM Takala, P Hämäläinen, M Matveinen, T Simonen, J Takatalo
  Enhancing Spatial Perception and User Experience in Video Games with Volumetric Shadows
  Computer-Human Interaction: Cognitive Effects of Spatial Interaction, Learning, and Ability. Lecture Notes in Computer Science, Wyeld, Theodor; Calder, Paul; Shen, Haifeng (Eds.), Springer International Publishing, pp 91-113, 2015.
- TM Takala
  RUIS – A Toolkit for Developing Virtual Reality Applications with Spatial Interaction
  Proceedings of the 2nd symposium on Spatial user interaction (SUI'14), Honolulu, HI, USA, October 4–5, 2014.
- TM Takala, M Matveinen
  Full Body Interaction in Virtual Reality with Affordable Hardware
  Virtual Reality (VR), IEEE, Minneapolis, USA, March 29th-April 2nd, 2014.
- TM Takala, M Mäkäräinen, P Hämäläinen
  Immersive 3D modeling with Blender and off-the-shelf hardware
  IEEE Symposium on 3D User Interfaces 2013, Orlando, USA, March 16th-17th, 2013.
- TM Takala, P Rauhamaa, T Takala
  Survey of 3DUI Applications and Development Challenges
  IEEE Symposium on 3D User Interfaces 2012, Orange County, USA, March 4th-5th, 2012.
- TM Takala, R Pugliese, P Rauhamaa, T Takala
  Reality-based User Interface System (RUIS)
  IEEE Symposium on 3D User Interfaces 2011, Singapore, March 19th-20th, 2011.

Invited speaker

- Nerd Nite Tokyo (2022) - Yokohama, Japan
- EURAXESS Me (2021) - online
- JSPS Science Dialogue (2020) - Saitama, Japan.
- 23rd EDUFI Winter School (2019) - Lammi Biological Station, Finland.
- AR & VR Industry Day at the Cable Factory (2018) - Helsinki, Finland.
- 3D Technologies in Fashion seminar at Aalto School of Arts (2018) - Helsinki, Finland.

- Virtual Reality seminar by Helsingin Insinöörit (2017) - Espoo, Finland.
- Art & Virtual Reality event of ARS17 at Kiasma (2017) - Helsinki, Finland.
- ARTtech seminar at Assembly computer festival (2016) - Helsinki, Finland.
- AEC Hackathon 2.7 (2015) - Helsinki, Finland.
- Junction X Helsinki (2015) - Helsinki, Finland.