

# Curriculum Vitae: Markku Turunen - 29.10.2020

## Full name

- Turunen, Markku Juhani
- Male

## Date and place of birth, nationality, current residence

- Born on September 5th, 1970, in Varkaus, Finland.
- Citizen of Finland.
- Living in Kangasala, Finland.

## Education and degrees awarded

- Ph.D. (computer science), *University of Tampere*, 2004. Grade: *eximia cum laude approbatur*. Title: "*Jaspis – A Spoken Dialogue Architecture and its Applications*".
- M.Sc. (computer science), *University of Tampere*, 1998. Grade: *laudatur*.
- B.Sc. (computer science), *University of Joensuu*, 1997.
- Adjunct Professor (Docent) of Interactive Technology, *University of Tampere*, 1.6. 2007 - .

## Linguistic skills

- Finnish: mother tongue
- English: working language
- Swedish: fluent

## Current position

- Professor of Interactive Technology, *Tampere University*, 1.1.2011 – (tenured)

## Previous work experience (since 1998)

- Research Professor, *University of Tampere*, 1.1.2009 – 31.12.2010
- Senior Researcher, *University of Tampere*, 1.8.2005 – 31.12.2008
- Professor (Acting), *University of Tampere*, 1.8.2004 – 31.7.2005
- Project Manager, *University of Tampere*, 1.10.2001 – 31.7.2004
- Researcher, *University of Tampere*, 1.3.1998 – 30.9.2001
- Visiting researcher, *Swedish Institute for Computer-Science*, Stockholm, Sweden, October 2008 - January 2009

## External funding, leadership and supervision (main projects, since 2000)

1. "*AIAl - Towards Accessible and Inclusive Artificial Intelligence (AIAl): Building on Finnish and Indian Expertise, Experiences, and Diversity*" (Ministry of Education, 2020-2022)\*
2. "*LEADBEHA - LEADership as a trigger for BEHAvioural change when creating AI cultures in companies and organisations*" (ESF/EU, 2019-2022)\*
3. "*HUMOR - HUMAN Optimized xR*" (*Business Finland*, 2020-2022)\*\*
4. "*AHJO – Automation - Human Interaction in Decision Making Systems*" (Ministry of Defense, 2020-2021)\*
5. "*SmartTram2*" (*Business Finland*, 2019-2021)\*
6. "*EMEX - Emerging Media Exploration*" (Erasmus+, 2018-2021)\*
7. "*OBELIX - Omni-Channel Brand Interaction Ecosystem for Consumer Products*" (*Business Finland*, 2019-2020)\*
8. "*RemoteFeel – Digital Feel for Accurate Operation of Work Machines*" (*Business Finland*, 2018-2020)\*
9. "*Vlogi360 - Interactive 360 solutions for video blogging*" (Viestintäalan tutkimussäätiö, 2018)\*
10. "*Digital User Services in Real Estate Business*" (*Business Finland*, 2018-2019)\*\*
11. "*Design for Value*" (Tekes, 2017-2019)\*\*
12. "*Digital Language Typology: Mining from the Surface to the Core*" (Academy of Finland, 2016 – 2019)\*
13. "*Living Lab Bus*" (Tekes, 2015 – 2019)\*
14. "*Immersive Media Disruption*" (Tekes, 2017-2018)\*
15. "*MAGELLAN – Management Game for Social and Healthcare Organizations*" (Tekes, 2017-2018)\*
16. "*DYNAVIS - Dynamic visualization in Product/Service Lifecycle*" (Tekes, 2016-2018)\*

17. “*VIRJOX - Experiential Services in Virtual Reality*” (Tekes, 2016-2018)\*
18. “*Professional Programme in Human-Technology Interaction*” (Ministry of Education, 2016-2017)\*
19. “*TICKLE - Technical and Socio-cultural Perspectives for Digitalization of Learning*” (CIMO, 2016 – 2017)\*
20. “*Data-to-Music Sonification for Business Designs, Products, and Services to Improve Quality of Life*” (Tekes, 2015 – 2017)\*\*
21. “*MIRACLE - Mixed Reality Applications for Culture and Learning Experiences*” (Tekes, 2015 – 2017)\*
22. “*Cloud-based editor for interactive 360-videos*” (Industry, 2016)\*
23. “*Preparation Project for Inclusive Technology for Schools for Children with Special Needs*” (Tekes, 2016)\*
24. “*Production and Use of Virtual Reality Content*” (Tekes, 2016)\*\*
25. “*S-STEP - Smart technologies for lifecycle performance*” (Tekes, 2014 – 2016)\*
26. “*Information Ergonomics II*” (Tekes, 2015 – 2016)\*
27. “*SmartHear – From Audio Technology to Health Technology*” (Tekes, 2014 – 2016)\*
28. “*JoPe - Effective Leadership with Real-time Research Knowledge*” (Tekes, 2014 – 2016)\*
29. “*People Flow API for 3rd parties*” (EIT/EU, 2015)\*
30. “*Digital Services*” (Tekes, 2012 – 2015)\*\*
31. “*UXUS - User Experience and Usability in Complex Systems*” (Tekes, 2011 – 2015)\*
32. “*RYM – Intelligent Indoor Environments*” (Tekes, 2011 – 2015)\*\*
33. “*KEINO – Gestural Interaction In Industrial Settings*” (Tekes, 2014)\*\*
34. “*Multimodal TV-control*” (Industry, 2014)\*
35. “*CHORUS – Choreography of User Interfaces: Body, Space and Movement in Interaction Design*” (Tekes, 2012 – 2014)\*
36. “*Semantic, Adaptive and Infomedia Lighting*” (EIT/EU, 2012 – 2014)\*
37. “*RuralVoice - Mobile Voice Service Deployment for Developing Countries: Case Rural India’s Bottom of the Pyramid*” (Tekes, 2012 – 2013)\*
38. “*EnergyLand - Intelligent spaces and functions for illustrating technology*” (Tekes, 2011 – 2013)\*
39. “*The Interaction Toolkit*” (EIT/EU, 2012 – 2013)\*
40. “*Active Learning Spaces*” (Tekes, 2012 – 2013)\*\*
41. “*MOBSTER - Mobile and Ubiquitous Dictation and Communication Application for Medical Purposes*” (Tekes, 2011 – 2013)\*
42. “*Multimodal Interaction Lab*” (EIT/EU, 2012)\*
43. “*Smart Light Environments*” (EIT/EU, 2011)\*
44. “*DIEM - Devices and Interoperability*” (Tekes, 2008 – 2012)\*\*/\*
45. “*DREX - Space, Theatre & Experience – Novel Forms of Evental Space*” (Tekes, 2010 – 2012)\*
46. “*DIYSE - Do It Yourself Smart Experiences*” (Tekes/ITEA2, 2009 – 2011)\*
47. “*Technologies for Mobile Speech Applications*” (Innovation Mill, 2010)\*
48. “*MOKOMO - Multimodal Mobile Context-sensitive User Interfaces*” (Tekes, 2009 – 2010)\*
49. “*GEAR3 – Grammar of Earcons*” (Tekes, 2009 – 2010)\*
50. “*MOBSTER II - Mobile Voice Editing and Speech Recognition Software II*” (Industry, 2009 – 2009)\*
51. “*COMPANIONS - Intelligent, Persistent, Personalised Multimodal Interfaces to the Internet*” (EU IP FP6/IST, 2006 – 2010)\*
52. “*TÄPLÄ - Ambient Intelligence Based on Sound, Speech and Multisensor Interaction*” (Tekes, 2007 – 2009)\*
53. “*MOBSTER - Mobile Voice Editing and Speech Recognition Software*” (Industry, 2007 – 2008)\*
54. “*PRIMA - Privacy in the Making*” (Nordunet3, 2006 – 2010)\*\*
55. “*AES - Ecological Approach to Smart Environments*” (Tekes, 2005 – 2007)\*\*
56. “*PUMS - New Methods and Applications of Speech Technology*” (Tekes, 2003 – 2007) \*\*/\*
57. “*A Speech-based Bus Timetable Service*” (Ministry of Transport and Communications, 2003)\*\*
58. “*COST 278 - Spoken Language Interaction In Telecommunication*” (EU COST, 2001–2005) \*
59. “*User Interfaces based on Film Technology*” (Tekes, 2002 – 2004)\*\*
60. “*DUMAS - Dynamic Universal Mobility for Adaptive Speech Interfaces*” (EU FP5/IST, 2001 – 2004)\*\*
61. “*USIX Interact - Language-based Interaction*” (Tekes, 2000 – 2002)\*\*\*
62. “*Mobile User Interfaces*” (Hewlett-Packard Voice Web Initiative, 2001) \*\*\*

- Role in the listed research projects: \* Principal investigator (PI) (of the local project), \*\* Co-PI (leading his own research group, application done collaboratively with the PI), \*\*\* Project manager and research group coordinator (application done collaboratively with the PI).
- Total funding for research: approx. 6 million euros (as PI) / 10 million euros (total).
- Leader of the *Pervasive Interaction research group* since 2004 (approx. 15 members).
- PhD supervision: 4 supervised (plus one as an additional supervisor). Supervising currently 8 + 1 active Ph.D. students.

- Supervised 69 M.Sc. thesis, examined 64 (133 in total).
- Leading of the IT-group of *Department of Computer Sciences* and *School of Information Sciences* 2010 – 2011.

## Merits in teaching and pedagogical competence

- Responsible person of two international M.Sc. programmes: “*Sustainable Digital Life*” (since 2020) and “*Human-Technology Interaction*” (until 2020); programme development, curricula planning, student selection and supervision, overall management of the programme.
- Teaching of the following courses:
  1. “*Fundamentals of Accessibility*”, 2020 (1). Tampere University.
  2. “*Speech and Audio Interaction*”, 2019 (2). Tampere University. (\*)
  3. “*Information Visualization*”, 2019 (2). Tampere University. (\*)
  4. “*Postgraduate seminar in Interactive Technology*”, 2015-2020 (8). University of Tampere. (\*)
  5. “*Master's Thesis Seminar in Interactive Technology*”, 2012 – 2020 (10). University of Tampere. (\*)
  6. “*Human-Technology Interaction Project Work*”, 2015 – 2020 (6). University of Tampere. (\*)
  7. “*Multimodal Interaction*”, 2013 – 2017 (8). University of Tampere. (\*)
  8. “*HCI4D - Overcoming the Digital Divide*”, 2015 (\*)
  9. “*Pervasive Interaction in Smart Environments*”, 2012 – 2014 (3). University of Tampere. (\*)
  10. “*ICT4D - Information and Communication Technologies for Development*”, 2014 (\*)
  11. “*Introduction to Research Methods*”, 2005 & 2010 (2). University of Tampere. (\*)
  12. “*Design and Development of Speech Interfaces*”, 2005 – 2010 (4). Univ. of Tampere. (\*)
  13. “*Dialogue System Architectures*”, 2008. Charles University (\*)
  14. “*Implementation of New Interaction Techniques*”, 2008. University of Tampere.
  15. “*Speech User Interface Project Work*”, 2002 – 2005 (3). University of Tampere. (\*)
  16. “*Principles of Object-Oriented Programming Languages*”, 2004. University of Tampere. (\*)
  17. “*Speech Interface Design*”, 2004. University of Tampere. (\*)
  18. “*Summer School on Speech Interfaces*”, 2000. University of Tampere. (\*)
  19. “*Summer School on WWW-programming*”, 1996. University of Joensuu. (\*)
  20. “*Introduction to Computing*”, 1996. Adult Education Centre of North Karelia. (\*)
  21. “*Introduction to Computing*”, 1995 – 1996 (2). University of Joensuu.
  22. “*Introduction to Programming*”, 1996. University of Joensuu.
  23. “*User Interfaces*”, 1996. University of Joensuu.
  24. “*Algorithms and Data Structures*”, 1996. University of Joensuu.
- In the above list, (\*) marks full responsibility of the course, and number in parenthesis marks how many times the course has been arranged to the date (56 in total).

## Awards, prizes and honours

- Best Paper Award: Mindtrek 2018 (“Hotspot Interaction in Omnidirectional Videos Using Head-Mounted Displays”)
- Reviewer’s Choice Award & Best Presentation Award: Interact 2017 - The 16th IFIP TC.13 International Conference on Human-Computer Interaction (“User Experience and Immersion of Interactive Omnidirectional Videos in CAVE Systems and Head-Mounted Displays”).
- Best Demo Award: CSCW 2016 – the 19<sup>th</sup> ACM Conference on Computer-Supported Cooperative Work and Social Computing (“CityCompass” collaborative language learning application)
- FIMECC Prize 2011 – Best research result of the FIMECC SHOK programme (“Gesture control for factory automation” application).
- Best Demo Award: AAMAS 2010 – the Ninth International Conference on *Autonomous Agents and Multiagent Systems* (“How Was Your Day?” dialogue system).
- Best Paper Award: MobileHCI 2009 - the 11th International Conference on *Human-Computer Interaction with Mobile Devices and Service* (“Multimodal control system for homes” application).

- Best Computer Science Ph.D. thesis in Finland in 2004 – The *Finnish Information Processing Association* on the recommendation of the *Finnish Society for Computer Science*.
- Finalist for the European most promising young researcher in computer science and applied mathematics in 2005 – The *European Research Consortium for Informatics and Mathematics*.
- Best Computer Science M.Sc. thesis in Finland in 1998 – The *Finnish Society for Computer Science*.

## Other academic merits

- Pre-examiner of five and opponent of nine doctoral dissertations.
- Evaluation of three academic docent applications.
- Active participation in conference and workshop organization and committee's (more than 40), reviewer for journals, conferences and workshops, research grants etc. (hundreds).
- General Chair of the *Academic MindTrek* conference. 2015 -
- Chairman of the *Indian Network*, *University of Tampere*, 2015 -
- Member of *Faculty of Communication Sciences Council*, *University of Tampere*, 2017 – 2018
- Member of *School of Information Sciences Council*, *University of Tampere*, 2014 – 2016
- Member of *Computer Science Department Council*, *University of Tampere*, 2007 – 2010
- Member of *Hypermedia Laboratory Council*, *University of Tampere*, 2004–2008
- Vice-member of *Faculty of Information Sciences Council*, *University of Tampere*, 2004 – 2007
- Vice-member of *Computer Science Department Council*, *University of Tampere*, 2001 – 2007
- Vice-member of *Research Council*, *University of Tampere*, 2002 – 2004
- Member of *Computer Science Department Council*, *University of Joensuu*, 1994 – 1995
- Member of *Faculty of Natural Science Council*, *University of Joensuu*, 1994 – 1995
- Invited keynote speaker, *India HCI 2015*, *Guwahati, India*.

## Scientific and societal impact of research

- Total number of publications: more than 220. Since 2010, 33% are based on international co-operation and 60% on multidisciplinary co-operation (online: <http://www.sis.uta.fi/~mt60043/publications.pdf>).
- Active participation in commercialization of research results, e.g., CEO of a start-up company *Multisense Oy* (<http://multisense.fi/>), a founding member of *Nomad Interaction Oy*.
- Several research results successfully adopted by industry.
- Research results produced for special user groups (e.g., visually-impaired users, cognitively disabled users) and unprivileged people in emerging areas (e.g., farmers, autistic children and pregnant women in rural India).
- Open source and publicly available software: e.g., the *Jaspis* architecture for spoken dialogue systems, *TravelMan* – a mobile application for public transportation.
- Publicly available services to support research, development and innovation: e.g., BosSi – Management Game (<https://bossi.uta.fi/>), Living Lab Bus - Development and testing platform for public transportation services (<https://llb.sis.uta.fi>).
- Several installations in public places such museums (*Vapriikki*, *Mobilia*).
- Educational applications for schools, e.g., spoken second language learning, physical exercises classes, some commercialized (e.g., *Aurora – The LightGame*).
- Evaluation and survey tools for large scale projects (e.g. “*Yhteispeli*”, 5000 participants).

## Positions of trust in society and other societal merits

- Member, Board of the *Finnish Information Processing Association* (TTL ry), 2009 –2012
- Member, Board of *Demola*, 2008 –
- Member, Board of *Suuntaamo*
- Member, Board of the *Centre for Ubiquitous Computing* (CUBIQ)
- Vice-member, Board of *Kites ry* (Finnish Society for Language Technology)
- Member, Treasurer, Board of the *Finnish Society for Computer Science*, 2007 – 2009
- Chairman, Board of the *Tampere Information Processing Association* (PITKY), 2003 – 2004
- Member, Board of the *Tampere Information Processing Association* (PITKY), 2001 – 2002