

# Curriculum Vitae

## i Personal information

Name: Lauri Savioja  
Born: 23.11.1966 in Turku, Finland  
Email: Lauri.Savioja@aalto.fi

## ii Degrees

- 1999 **Doctor of Science** in Technology, thesis title: “Modeling Techniques for Virtual Acoustics”, Helsinki University of Technology
- 1995 **Licentiate of Science** in Technology, Helsinki University of Technology
- 1991 **Master of Science** in Technology, major in Computer Science, Helsinki University of Technology,
- 1985 **Matriculation Examination**, Riihikedon lukio, Pori, Finland

## iii Adjunct Professorships

**Adjunct professor** in virtual reality technology, University of Jyväskylä, 2010.

## iv Present Employment

**Professor** (since 2003), **Head of Department** (since 2014), Aalto University School of Science, Department of Media Technology.

## v Most Important Posts and Positions

- 1.8.2009-31.7.2010 **Chief Research Scientist**, Aalto University, visiting NVIDIA Research
- 2001-2003 **Acting Professor**, Helsinki University of Technology, Telecommunications Software and Multimedia Laboratory
- 1999-2000 **Senior Lecturer**, Helsinki University of Technology, Telecommunications Software and Multimedia Laboratory
- 1996-1999 **Researcher**, Helsinki University of Technology, Laboratory of Acoustics and Audio Signal Processing
- 1993-1995 **Researcher**, Helsinki University of Technology, Computer Science Laboratory
- 1992 **Assistant**, Helsinki University of Technology, Computer Science Laboratory
- 1991 **Research assistant**, Helsinki University of Technology, Computer Science Laboratory

## vi Most Important Visits Abroad

- August-September 2011, **Visiting Professor**, Norwegian University of Science and Technology, hosted by Prof Peter Svensson.
- May-June 2008, **Visiting Professor**, University of York, hosted by Dr Damian Murphy.
- October 2007, **Visiting Professor**, Universite Paris-Sud 11, hosted by Prof Christian Jacquemin.

## vii Most Important Scientific and Academic Administration Positions

### vii.1 Organisation of International Conferences

- **Chair of the organizing committee:** AES Int. Conf. on Spatial Audio (2014), Scandinavian AR workshop (2010), EAA Symposium on Auralization (2009), The 3rd CAVE-Programming Workshop (2003).
- **Member of the organizing committee:** DAFx'08 - Digital Audio Effects (2008). AES 30th Int. Conf. on Intelligent Audio Environments (2007), ICAD'01 Int. Conf. on Auditory Display (2001).
- **Session organizer or chair in the following conferences:** Forum Acusticum (2014), International Congress on Acoustics (2013) (two sessions), Internoise (2012), AES 41st Int. Conf. (2011), Forum Acusticum (2008), AES 30th Int. Conf. (2007), Virtual Reality Software and Technology (VRST, 2006), The Baltic-Nordic Acoustics Meeting (2004), AES 22th Int. Conf. (2002).

### vii.2 Academic Administrative Positions

- **Member of the Tenure Track Committee** of Aalto School of Science, 2011-
- **Member of the Council of the Doctoral Program** at Aalto School of Science, 2010-2013
- **Head of the committee for doctoral studies** in computer science at TKK 2004-2009.

## viii Scientific Awards and Honours

- Fellow of the Audio Engineering Society (2013).
- Award for the **best doctoral thesis** in the field of technology during year 1999. Award granted by the Finnish Association of Graduate Engineers TEK.

## ix Most Important Research Funding

- Research sabbatical at Stanford CCRMA and University of North Carolina, Foundations' Professor Pool, 2015-2016, 27 000 euros.
- EPOS, Efficient perceptually optimal simulation of room acoustics, Academy of Finland, 2013-2017, 552 148 euros.
- Audio and acoustics in massively parallel computation architectures, Academy of Finland, 2009-2010, 85 500 euros.
- Mobile Mixed Reality, 2008-2011, Tekes (National Technology Agency) and industry via TIVIT SHOK, 530 000 euros.
- Urban contextual information interfaces with multimodal augmented reality, 2008-2012, Aalto University / MIDE program, 460 000 euros.
- Real-Time 3D, Academy of Finland, 2005-2008, 156 000 euros.
- Intuition, Network of Excellence on Virtual Reality and Virtual Environments Applications for Future Workspaces, Commission of the European Communities, 2004-2008, 50 500 euros.
- Uni-Verse, A Distributed Interactive Audio-Visual Virtual Reality System, Commission of the European Communities, 2004-2007, 284 000 euros.
- 3Dr, Advanced 3D Rendering, Tekes, 2003-2007, 730 000 euros.
- SARA, Spatial Audio and Room Acoustics, Academy of Finland, 2003 - 2006, 240 000 euros.

- Helma, Fine Motor Interaction Methods for Immersive Free-Hand Expression, Tekes, 2003-2004, 164 000 euros.
- MARA, Mobile Augmented Reality Audio, Nokia Research, 2001-2004, 460 000 euros.
- BS-VE, 3D Visualization of Building Services in Virtual Environments, Tekes, 2001-2003, 500 000 euros.

## **x Research Leadership**

### **x.1 Supervised Post-Docs**

- PhD Jonathan Botts, 2012-2014.
- PhD Alex Southern, 2010-2012.
- D. Sc. (Tech.) Samuel Siltanen, 2010-.
- PhD Timo Tossavainen, 2009-2011.
- D. Sc. (Tech.) Tapio Lokki, 2002-2007.

### **x.2 Supervised and Instructed Doctoral Thesis**

- D.Sc. (Tech.) Hannes Gamper, “Enabling technologies for audio augmented reality systems,” 2014.
- D.Sc. (Tech.) Mikko Laakso, “Navigation and Object Manipulation in Collaborative VR Interior Design,” (instructed), 2013.
- D.Sc. (Tech.) Sakari Tervo, “Localization and tracing of early acoustic reflections in enclosures,” 2012.
- D.Sc. (Tech.) Jukka Pätynen, “A virtual symphony orchestra for studies on concert hall acoustics,” 2011.
- D.Sc. (Tech.) Samuel Siltanen, “Efficient Physics-Based Room-Acoustics Modeling and Auralization,” 2010.
- D.Sc. (Tech.) Sampo Vesa, “Studies on Binaural and Monaural Signal Analysis Methods and Applications,” 2009.
- D.Sc. (Tech.) Janne Kontkanen, “Novel Illumination Algorithms for Off-line and Real-time Rendering,” 2007.
- D.Sc. (Tech.) Jaakko Lehtinen, “Theory and Algorithms for Efficient Physically-based Illumination,” 2007.
- D.Sc. (Tech.) Antti Kelloniemi, “Room Acoustics Modeling with the Digital Waveguide Mesh - Boundary Structures and Approximation Methods,” 2006. Co-supervised with prof. Vesa Välimäki.
- D.Sc. (Tech.) Samuli Laine, “Efficient Physically-Based Shadow Algorithms,” 2006.
- D.Sc. (Tech.) Timo Aila, “Efficient Algorithms for Occlusion Culling and Shadows,” 2005.
- D.Sc. (Tech.) Tapio Lokki, “Physically-based Auralization - Design, Implementation, and Evaluation,” 2002.

## **xi Scientific Expert Positions**

### **xi.1 External Reviewer in Professor/Docent Nominations**

- University of Maryland, USA, 2013.
- University of California at Davis, USA, 2012.
- Tampere University of Technology, Finland, 2011.
- Chalmers University of Technology, Sweden, 2006.

## xi.2 Opponent and External Reviewer in PhD Committees

- RWTH Aachen University, Germany, Frank Wefers, 2014.
- Edinburgh University, Scotland, Craig Webb, 2014.
- Universitat Politecnica de Valencia, Spain, Juan Navarro, 2012.
- Queen's University Belfast, Northern Ireland, Konrad Kowalczyk, 2008.
- University of York, England, Simon Shelley, 2008.
- Nice Sophia-Antipolis University, France, Emmanuel Gallo, 2007.
- Chalmers University of Technology, Sweden, Pontus Larsson, 2005.
- Tampere University of Technology, Finland, Ismo Rakkolainen, 2002.
- Helsinki University of Technology, Finland, Ville Pulkki, 2001.

## xi.3 Editorial Boards

- **Associate Editor** for the IEEE Transactions on Audio, Speech and Language Processing, 2010-2014,
- **Leading Guest Editor** of a Special issue on Spatial Audio in IEEE Journal on Selected Topics in Signal Processing (2014-2015).
- **Guest Editor** of a Special issue on model-based sound synthesis in EURASIP Journal on Applied Signal Processing (2004).

## xi.4 Referee for Journals

- IEEE Transactions on Audio, Speech and Language Processing (former IEEE Transactions on Speech and Audio Processing).
- Journal of the Acoustical Society of America.
- Acta Acustica / Acustica.
- Journal of the Audio Engineering Society.
- ACM Transactions on Graphics.
- IEEE Signal Processing Letters.
- IEEE Transactions on Multimedia.
- IEEE Multimedia.
- Journal of Information Technology in Construction.
- International Journal of Human-Computer Studies.
- Journal of Ambient Intelligence and Smart Environments

## xi.5 Referee for Conferences

- EAA Auralization Symposium, 2014.
- Digital Audio Effects, 2005-.
- Conferences of the Audio Engineering Society, 2002-.
- International Conference on Auditory Display, 2001-.
- 3D User Interfaces, 2005-2010.
- International Computer Music Conference, 2005, 2008.
- International Conference on Signal Processing and Multimedia Applications, 2006.
- European Signal Processing Conference, 2000-2006.

## xi.6 Other Scientific Expert Positions

- **Reviewer** for German Research Foundation DFG (2014),
- **Evaluator** for proposals on EU FP7-ICT-2013-10 Call (2013),

- **Reviewer** for Portugese 'Fundação para e Ciência e a Tecnologia' (2012), Chilean 'National Commission for Scientific and Technological Research' (2013),
- **Reviewer** for EU FP6/IST FET-Open project Crossmod 2006-2008,
- **Member of the management committee** COST Action 287 ConGAS (2003-2004).

## **xii Scientific Impact**

**Volume of publications:** **65** reviewed journal and conference articles, **56** other international publications

**Number of citations:** ISI WoS **394**, Scopus **676**, Google Scholar **2555**

**h-index:** ISI WoS **11**, Scopus **12**, Google Scholar **26**

### **Most cited publications**

L. Savioja, J. Huopaniemi, T. Lokki, R. Väänänen, Creating Interactive Virtual Acoustic Environment, In J. Audio Eng. Soc., vol. 47, no. 9, pp. 675-705, 1999. Times cited: 338 (Google Scholar)

L. Savioja, T. Rinne, T. Takala, Simulation of room acoustics with a 3-D finite difference mesh, In Proc. Int. Computer Music Conf., pp. 463-466 Aarhus, Denmark, 1994. Times cited: 151 (Google Scholar)