Curriculum Vitae   **21st March 2006**

Perttu Hämäläinen
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Personal information

Born 23rd July 1975 in Puumala, Finland.

Languages

Finnish (mother tongue), English (excellent), Swedish (satisfactory), German (satisfactory)

Education

2002-	Doctoral studies, Helsinki University of Technology, expected to finish in summer 2006
2002	Master of Arts in New Media, University of Art and Design Helsinki UIAH, Media lab. Thesis: QuiQui's Giant Bounce - concept and interaction design of a perceptually interactive computer game for children
2001	Master of Science in Technology, Helsinki University of Technology, Department of Electrical and Telecommunications Engineering. Thesis: A Scalable Audio Streaming and Processing System.

Professional experience

2004-	Co-founder, R&D Director, Animaatiokone Industries Co-op.
2002-	Research scientist, Helsinki University of Technology, Telecommunications Software and Multimedia Laboratory.
2000-2002	Specialist, Oy Elmorex Ltd. My duties included electronics and software design, game design and design and implementation of signal processing algorithms.
1999-2000	Programmer, Audioriders Ltd. Further development of my M.Sc. thesis project.
1998-1999	Research assistant, Helsinki University of Technology, Signal Processing Laboratory. I produced teaching material for a basic course in digital electronics and computer technology and worked on my M.Sc. thesis project.
1997-1998	Chief technician, OUBS Ota-tv. OUBS Ota-tv is the campus television at Helsinki University of Technology
1996-1997	Editor, OUBS Ota-tv. My main responsibility was sound design of the weekly 30-minute program. In addition to that, I did cinematography, lighting and stage design, scriptwriting and video editing.

Expertise

I have professional skills and experience in interaction and sound design, signal processing technology (e.g. audio and video effects), computer vision, software design (C++, Delphi, Java, several assembler dialects) and electronics design. I programmed my first graphical computer game when I was 9 years old. In addition to new media, I've been involved in various theatre and short film productions.

The following introduces some of my works.

Kick Ass Kung-Fu, an immersive game installation that transforms computer gaming into a visual, physical performance like modern dance or sports. My role: Lead design & original idea, computer vision, music. Homepage: http://kickasskungfu.net


Animaatiokone, an installation for learning about stop- motion animation. The installation is built on an animation software and user interface I designed and implemented. Homepag: *http://www.animaatiokone.net*


Kukakumma Muumaassa, a physically interactive computer game and adventure. This was my Master's Thesis project at UIAH Media lab. My responsibilities were interaction and sound design as well as programming. Homepage: *http://www.kukakumma.net*

Design and programming of the sound engine of the Soittopeli (PlaySingMusic) musical edutainment CD-ROM (in collaboration with Tero Tolonen) by Elmorex Ltd. The sound engine features for example real time software synthesis of musical instruments and fundamental frequency estimation from the sound input. Homepage: http://*playsingmusic.com*
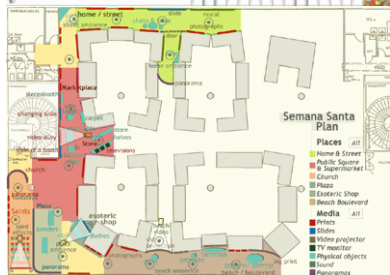
Design of soundscapes and audio technology for the Semana Santa exhibition at Helinä Rautavaara's museum, summer 2000. I designed a 20-channel three dimensional interactive sound animation system for behavioural modelling of large acoustic spaces. Homepage: *http://mlab.uiah.fi/semanasanta*
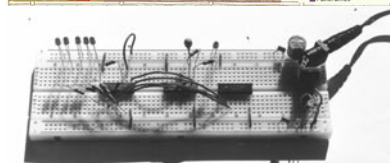
Digiskitti – a series of simple digital electronics devices and a compendium with a step-by-step illustrated guide for building the devices on a breadboard. The devices feature different light and sound effects. Designed for a basic course in digital and computer technology at HUT. Homepage: *http://wooster.hut.fi/kurssit/s88110/kitti.html*

Awards

2004   Kick Ass Kung-Fu (Perttu Hämäläinen, Ari Nykänen, Mikko Lindholm) won the Games Platforms category in Europrix Top Talent multimedia innovation competition in Vienna, Austria.

Tampere Mindtrek Grand Prix for Kick Ass Kung-Fu, Tampere, Finland

Korjaamo Young Design Award for Animaatiokone (Mikko Lindholm, Perttu Hämäläinen, Ari Nykänen), Helsinki, Finland

2003   Animaatiokone won the Pikku Kakkonen (best multimedia for children) and non-commercial categories at Tampere Mindtrek competition, Finland.

Prix Spécial du Jury for Animaatiokone in the international Prix Möbius multimedia competition in Athens, Greece.

2002   Kukakumma Muumaassa (Perttu Hämäläinen, Johanna Höysniemi, Teppo Rouvi, Laura Turkki) was one of the winners of the Milia New Talent Competition in Cannes, France, February 2002.

2001   Kukakumma Muumaassa won the Pikku Kakkonen category in Tampere Mindtrek competition (best multimedia for children)

Exhibitions

2005   Kick Ass Kung-Fu at Ultrasound festival, Huddersfield, UK

Animaatiokone at Japan Pop, Tennis Palace Art Museum, Helsinki, Finland

Kick Ass Kung-Fu at Wired NEXTFEST, Chicago, US

Kick Ass Kung-Fu at Tennispalatsi, Helsinki, Finland

Kick Ass Kung-Fu at pixelACHE 2005 festival, Helsinki, Finland

Kick Ass Kung-Fu at Korjaamo gallery, Helsinki, Finland

2004   Kick Ass Kung-Fu at Nordic Exceptional Trendshop, Copenhagen, Denmark

Kick Ass Kung-Fu at Europrix Top Talent, Vienna, Austria

Kick Ass Kung-Fu at MindTrek, Tampere, Finland

Kick Ass Kung-Fu at Kiasma Theater, Helsinki, Finland

Animaatiokone at Korjaamo gallery, Helsinki, Finland

Animaatiokone at Animex festival, Middlesbrough, UK

Kukakumma Muumaassa at Musta tuntuu, Rauma Art Museum, Rauma, Finland

2003   Kukakumma Muumaassa at Game On exhibition, Tennis Palace Art Museum, Helsinki, Finland

Animaatiokone at Nordic Exceptional Trendshop, Copenhagen, Denmark

Animaatiokone at MindTrek, Tampere, Finland

Animaatiokone at Prix Möbius International, Athens, Greece

Animaatiokone at Annecy animation festival, Annecy, France

Animaatiokone at Tough Eye animation festival, Turku, Finland

Animaatiokone at Kunsthalle Lophem, Belgium

Animaatiokone at PixelAche: Kiasma in Helsinki, Finland, Gerschwin Hotel in New York, USA, and SAT in Montreal, Canada

Animaatiokone at FF media festival, Rovaniemi, Finland

Animaatiokone at Tampere Film Festival, Tampere, Finland

Animaatiokone at Prix Möbius Preview Exhibition, Helsinki, Finland

2002   Kukakumma Muumaassa in Design Museo, Helsinki, Finland

Animaatiokone at Leffakansio, Helsinki, Finland

Animaatiokone at Kettupäivät, Helsinki, Finland

Animaatiokone at Animatricks, Helsinki, Finland

Animaatiokone at Mainonnan Viikko, Helsionki, Finland

Animaatiokone at Love & Anarchy festival, Helsinki, Finland

2000   Semana Santa exhibition at Helinä Rautavaara's museum, Espoo, Finland.

Invited talks

2006   "Exertion interfaces and digital sports", University of Art and Design Helsinki Media Lab

2005   "Designing Kick Ass Kung-Fu", Flimmer international film festival, Norrköping, Sweden

"Mixed reality martial arts", International symposium on Mixed Reality, RIXC Media Space, Riga, Latvia

2004   "Interface driven edutainment", University of Turku, Pori, Finland

"Computer vision based interfaces", Experimental interaction workshop, University of Art and Design, Helsinki, Finland

2003   "Experimental interaction in games", Game On exhibition, Tennispalatsi art museum, Helsinki, Finland

"Computer vision based interfaces", Experimental interaction workshop, University of Art and Design, Helsinki, Finland

2002   "Experimental Interaction in games", Pelin kosketus seminar day, YLE, Finland

"Designing QuiQui's Giant Bounce", Jyväskylän kesä festival, Jyväskylä, Finland

International journal articles

Höysniemi, J., Hämäläinen, P., and Turkki, L. (2003). Using peer tutoring in evaluating the usability of a physically interactive computer game with children. Interacting with Computers, Volume 15, Issue 2, pp. 141-288 (April 2003).

Höysniemi, J., Hämäläinen, P., Turkki, L., Rouvi, T. (2005) Children's Intuitive Gestures in Vision Based Action Games, Communications of the ACM, Vol. 48, Issue 1, pp. 44-50 (January 2005)

Fully refereed international conference papers

Mäki-Patola, T., Hämäläinen, P., Kanerva, A., The Augmented Djembe Drum – Sculpting Rhythms, to be published in proceedings of NIME 2006

Johanna Höysniemi and Perttu Hämäläinen, Children's and Parents' Conception of Full-Body Interaction and Violence in a Martial Arts Game. in *Proceedings of Conference on Designing for User eXperience (DUX 2005)*, 3-5 November 2005, San Francisco, CA, USA.

Hämäläinen, P., Höysniemi, J., Ilmonen, T., Lindholm, M., Nykänen, A. Martial Arts in Artificial Reality, *Proceedings of ACM Conference on Human Factors in Computing Systems (CHI'2005)*, Portland, Oregon, 2-7 April 2005, ACM Press

Hämäläinen, P, (2004) Interactive Video Mirrors for Sports training. *Proceedings of the Third Nordic Conference on Human-Computer Interaction*, 23-27 Oct 2004, Tampere, Finland, pp. 199-202

Höysniemi, J., Aula, A., Auvinen, P., Hännikäinen, J. & Hämäläinen, P. (2004). Shadow Boxer - A Physically Interactive Fitness Game. *Proc. Third Nordic Conference on Human-Computer Interaction*, 23-27 Oct 2004, Tampere, Finland, pp. 199-202

Hämäläinen, P, Mäki-Patola, T. Pulkki, V. Airas, M. (2004) Musical Computer Games Played by Singing. *Proc. 7th International Conference on Digital Audio Effects (DAFx'04)*, 5-8 Oct 2004, Naples, Italy, pp. 367-371

Mäki-Patola, T. Hämäläinen, P. (2004) Effect of Latency on Playing Accuracy of two Gesture Controlled Continuous Sound Instruments Without Tactile Feedback, *Proc. of the 7th International Conference on Digital Audio Effects (DAFx'04)*, 5-8 Oct 2004, Naples, Italy, pp. 11-16

Mäki-Patola, T. Hämäläinen, P. (2004) Latency Tolerance for Gesture Controlled Continuous Sound Instrument without Tactile Feedback. Accepted for publication at International Computer Music Conference (ICMC 2004), 1-6 Nov 2004, Miami, USA

Höysniemi, J., Hämäläinen, P. and Turkki, L. (2004). Wizard of Oz Prototyping of Computer Vision Based Action Games for Children. Proc. International conference on Interaction Design and Children (IDC2004), 1-3 July 2004, Maryland, USA, pp. 27-34

Höysniemi, J. and Hämäläinen, P. (2004). Describing children's intuitive movements in a perceptive adventure game. Proc. workshop on Multimodal Corpora: Models of Human Behaviour for the Specification and Evaluation of Multimodal Input and Output Interfaces, 25 May 2004, Lisbon, Portugal, pp.

Hämäläinen, P., Lindholm, M., Nykänen, A., Höysniemi, J. (2004) Animaatiokone – an Installation for Creating Clay Animation. in proceedings of ACM Conference on Human Factors in Computing Systems (CHI 2004), Vienna, Austria, April 2004, ACM Press.

Höysniemi, J., and Hämäläinen, P. (2003). Who is afraid of spiders? Two Perceptive Computer Games for Children. Proceedings of International Conference on Interaction Design and Children 2003 (IDC2003), Preston, England, July 2003.

Hämäläinen, P., and Höysniemi, J. (2002). A Computer Vision and Hearing Based User Interface for a Computer Game for Children. In Proceedings of the 7th ERCIM Workshop "User Interfaces For All", 23-25 October 2002, Paris.

Höysniemi, J., Hämäläinen, P., and Turkki, L. (2002). Using Peer Tutoring in Evaluating the Usability of a Physically Interactive Computer Game with Children. International Workshop on Interaction Design and Children, 28-29 August 2002, Eindhoven, The Netherlands.

Non-refereed international conference papers

Hämäläinen, P. (2002). Smoothing of the Control Signal Without Clipped Output in Digital Peak Limiters, Proceedings of 5th International Conference on Digital Audio Effects (DAFx-02), pp. 195-198, Hamburg, Germany.

J. Meltaus, V. P. Plessky, P. Hämäläinen, and M. M. Salomaa (2004) Genetic optimization algorithms in the design of coupled SAW filters, proceedings of 2004

IEEE International Ultrasonics, Ferroelectrics, and Frequency Control 50th Anniversary Joint Conference.

Other publications

Kangas, S. and Hämäläinen, P. (2004) Hyötypelien lajityyppimäärittely ja käyttöliittymärealismi, Lähikuva 2-3/2004, Lähikuva-yhdistys ry.

Hämäläinen, P. (2003). Animaatiokone täyttää vuosia. Avek-lehti 02/03, AVEK/Kopiosto ry

Hämäläinen, P. (2002). QuiQui's Giant Bounce. Concept and Interaction Design of a Perceptually Interactive Computer Game for Children. MA thesis for Medialab for University of Art and Design Helsinki, UIAH.

Hämäläinen, P. (2001). A Scalable Audio Streaming and Processing System. M.Sc(Tech) thesis for Helsinki University of Technology, Department of Electrical and Telecommunications Engineering.