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Anders Johansson  
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## Anders M. Johansson

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### VITA

<b>Birth</b>	Åhus, Sweden, 10 February 1974
<b>Family</b>	Married, 2 children
<b>Citizenship</b>	Sweden

### EDUCATION

<b>1993</b>	Senior high school, section of electrical engineering.
<b>2000</b>	M.Sc. in Electrical engineering with emphasis on Telecommunications and Signal Processing.
<b>2000</b>	Master's Thesis "Sub-band Acoustic Echo Cancellation".
<b>Ongoing</b>	PhD Thesis "Acoustic sound source localisation and tracking in indoor environments".

### EMPLOYMENT

<b>1994–1996</b>	Tutor, University of Karlskrona Ronneby.
<b>1996–1997</b>	Research engineer, University of Karlskrona Ronneby.
<b>1997–1999</b>	Research engineer and tutor, University of Karlskrona Ronneby.
<b>2000–2002</b>	Research engineer, Australian Telecommunications Research Institute.
<b>2002–2007</b>	Senior research engineer, University of Western Australia.
<b>2007–present</b>	Research associate, Blekinge Institute of Technology.

### RESEARCH INTERESTS

<b>Main</b>	Dynamic target localisation and tracking using multisensor data. Optimisation of sensor placement, dynamics models and models for target discovery.
<b>Minor</b>	Hardware and software components for real-time signal processing.

### PUBLICATIONS

#### *Papers in Refereed Journals*

<b>2007</b>	Anders M. Johansson and Eric A. Lehmann. Evolutionary optimization of dynamics models in sequential Monte Carlo target tracking. <i>IEEE Transactions on Evolutionary Computation</i> , 2007. Submitted
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## PUBLICATIONS (CONTINUED)

Eric A. Lehmann and Anders M. Johansson. Prediction of energy decay in room impulse responses simulated with an image-source model. *Journal of Acoustical Society of America*, February 2007. Submitted

Eric A. Lehmann and Anders M. Johansson. Particle Filter with Integrated Voice Activity Detection for Acoustic Source Tracking. *EURASIP Journal on Advances in Signal Processing*, 2007:Article ID 50870, 11 pages, 2007

### *Selected Conference Papers*

**2005** Anders Johansson and Sven Nordholm. Robust acoustic direction of arrival estimation using Root-SRP-PHAT, a realtime implementation. In *IEEE International Conference on Acoustics, Speech, and Signal Processing*, March 2005

**2006** Anders Johansson and Eric Lehmann. Real-Time Implementation of a Particle Filter with Integrated Voice Activity Detector for Acoustic Speaker Tracking. In *IEEE Asia Pacific Conference in Circuits and Systems*, Singapore, December 2006

Eric Lehmann and Anders Johansson. Experimental performance assessment of a particle filter with voice activity data fusion for acoustic speaker tracking. In *Nordic Signal Processing Symposium*, Reykjavik, Iceland, June 2006

**2007** Eric A. Lehmann and Anders M. Johansson. Reverberation-time prediction for room impulse responses simulated with the image-source model. In *Workshop on Applications of Signal Processing to Audio and Acoustics*, New Paltz, NY, October 2007

## RESEARCH PROJECTS

**Research platform** Development of generic PC based research platform for conducting experiments in real-time microphone array signal processing. Implemented algorithms includes several blind signal separation algorithms and other types of array and single channel speech enhancement algorithms, VoIP stack and several microphone array acoustic localization algorithms.

**Hearing protectors** Engineering team leader for development of hardware and software demonstrator for smart hearing protector for industrial use. The demonstrator was used to secure VC funding and launch the startup [Sensear](#).

**Echo canceler** Software implementation of subband acoustic echo canceler, PC interface and I/O drivers using parallel DSP real-time operating system 3L running on Loughborough Sound Images DSP card.

## RESEARCH PROJECTS (CONTINUED)

<b>Active noise control</b>	Software implementation of active noise control algorithm (Filtered-X NLMS) on Texas Instruments DSP for reducing noise in helicopter intercom system.
<b>Fixed beam former</b>	Software implementation of fixed beam former, PC interface and I/O drivers on Spectrum Signal Processing dual DSP board.
<b>Software radio</b>	Member of a team designing and implementing of a combined software and hardware wide-band CDMA modem for wireless TCP/IP. The work included implementation of software back-end: channel encoder and decoder, interleaver and deinterleaver and source encoder and decoder.

## SKILLS

	<b><i>Software engineering</i></b>
<b>Languages</b>	C, C++, Matlab, Perl, LabVIEW, BASH shell scripting, HTML, XML and $\text{\LaTeX}$ .
<b>CPU architectures</b>	Intel x86, SSE, SSE2 and MMX.  Microchip C16 and C18.  Texas instruments TMS320 series DSPs C240, C55, C31, C32, C40 and C67.
<b>Operating systems</b>	Linux, Solaris, 3L, Win 95/NT4 and DOS.
<b>Applications</b>	CVS, GCC Tool chain, Several PCB design suits.
<b>Miscellaneous</b>	Excellent skills in implementing real-time fix and floating point signal processing algorithms in DSPs and on PC platforms. Very good skills in HW/SW co-design. Some experience in UNIX OS service configuration and systems administration.
	<b><i>Acoustics engineering</i></b>
<b>Equipment</b>	Excellent practical skills in using acoustic measurement equipment such as SLMs, microphones, loudspeakers, spectrum analyzers, and various types of sound recording equipment. In particular gear from Larson Davis, PCB, Agilent and RME.
<b>Design</b>	Practical experience in designing and building anechoic chambers.
<b>Measurements</b>	Practical experience in performing acoustic measurements in industrial and indoor environments, including sound recording, reverberation time measurements and SPL measurements.

## SKILLS (CONTINUED)

	<b><i>Hardware engineering</i></b>
<b>Circuit design</b>	<p>Total of two years experience analog and digital electronic circuit design. Skills includes:</p> <p>Design of analog filters including anti aliasing filters.</p> <p>Low noise analog amplifiers for microphones, ECG and strain gauge.</p> <p>Application of high fidelity audio codecs and high speed low power DSPs.</p> <p>Power supply design linear, DC/DC and isolated DC/DC including battery operated power supplies and chargers and POE.</p> <p>Stepper and DC motor control circuitry.</p> <p>Bus standards: I2C, ADAT, PCI, Ethernet 10/100/1000, USB and several proprietary serial busses.</p> <p>Practical PCB manufacturing including SMD soldering.</p> <p>Highly skilled in using electronic measurement equipment such as DMMs, signal generators, spectrum analyzers, logic analyzers, oscilloscopes and frequency counters, including hardware/software co-debugging.</p>
<b>Mechanic designs</b>	<p>Mechanical design of a robot used in teaching.</p> <p>Custom fastening systems for microphones and loudspeakers for indoor, outdoor and in car environments.</p>
	<b><i>Management skills</i></b>
<b>Team manager</b>	<p>Head of engineering team consisting of four engineers developing hardware and software prototype for smart hearing protector. The prototype was used to launch the startup <a href="#">Sensear</a>.</p>
<b>Lab manager</b>	<p>Manager for the acoustic research lab at the Western Australian Telecommunications Research Institute 2002-2007.</p>
<b>Manager</b>	<p>Supervision of a total of eight short term employees working on various research projects.</p>
<b>Intellectual property</b>	<p>Experience and training in management and valuation of IP in university research environments, including IP law and ownership, IP protection and transfer and patent application procedures.</p>

## SKILLS (CONTINUED)

### *Education experience*

<b>Tutoring</b>	Control systems engineering.
<b>Labs development</b>	Development of new labs in robotics, analog electronics and electronic measurement techniques.
<b>Lab supervision</b>	Practical laboratory units in analog and digital electronics, signal processing and electronic measurement techniques.
<b>Thesis supervision</b>	Supervision of eight final year projects on bachelor and masters level.

## MISCELLANEOUS

<b>Language</b>	First language Swedish, second language English. Speaks English without accent.
<b>Cultural knowledge</b>	Good familiarity with Asian cultures and cuisine, in particular Japanese.
<b>Sports</b>	Cycling, swimming and aerobics.
<b>OSS Software</b>	<p>MPlayer open source software project member 2000–2004. Head responsible for audio plugin subsystem used inside multimedia player. The developed algorithms includes resampling, noise gate, compressor/expander, graphic equalizer, surround sound decoder and automatic gain control.</p> <p>Linear algebra library open source software project leader for the project libfilth 2004–present. The library contains a large number of filter design algorithms, filter bank implementations and general linear algebra algorithms used in signal processing. Total size of the project is 30k LOC.</p>