

Joachim Neumann



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Professional experience

October 2013 – now	independent IT Consultant
January 2012 – September 2013	Head of Development at Jacoti Hearing Technologies, Barcelona
June 2008 – December 2011	Researcher at Telefonica I+D, Barcelona
July 2007 – December 2007	Research in Music Information Retrieval, Universitat Pompeu Fabra
January 2004 – June 2007	Research on Human machine interaction in a smart room at the Technical University of Catalonia, Barcelona, Spain
August 1998 - December 2003	Audiological Research at the Oticon research centre Eriksholm in Copenhagen, Denmark
January 1997 - July 1998	Hearing aid research at KIND in Hannover, Germany
January 1996 – December 1996	EEG- and MEG-based brain research at the Department for Clinical Psychology at the Humboldt University, Berlin, Germany

Education

October 1991 – February 1996	PhD in physics with “magna cum laude” at the Carl von Ossietzky Universität Oldenburg, Germany
August 1983 – October 1991	Master of science in physics (highest grade) on Otoacoustic Emissions at the University of Göttingen, Germany

Languages

German (mother tongue), English (proficient), Spanish and Danish (fluent), Catalan (beginner)

IT

Profound knowledge in C, C++, Objective C, Java, Python, Matlab, DSP programming Atlassian tools. Implementation of real-time audio systems, mobile phone development on iOS and Android.

Other activities

Participation in the Google contest for the Android operation system for mobile phones.

References

Dr. Josep R. Casas, Universitat Politècnica de Catalunya, josep@gps.tsc.upc.edu

Prof. Dr. Dr. Birger Kollmeier, Medical Physics Section, Carl von Ossietzky Universität Oldenburg, Germany, birger.kollmeier@uni-oldenburg.de. Birger Kollmeier was my PhD supervisor.

Prof. Volker Hohmann, Universität Oldenburg, Germany, volker.hohmann@uni-oldenburg.de. Volker Hohmann followed my career over the last 22 years.

Graham Gaylor, Research Director at Oticon A/S, gn@oticon.dk

Research Statement

I am an independent IT Consultant in Barcelona, Spain.

I have been three years with Jacoti bvba, a small high-tech company with offices in Belgium and Spain that develops and markets medical hearing support applications for the iOS platform. As Head of Development, my responsibilities included audiological concepts, signal processing technology and product usability. I lead the team that implements the hearing technology in consumer products, such as Jacoti ListenApp. Additionally, I installed a quality management system, for which Jacoti has received the European CE certificate from a notified body. This empowered Jacoti to self-certify Class II medical devices according to annex II of the EU's MDD. Altogether, we went from concept to a certified class IIa medical software product in only two years.

In my 5 years at Oticon's Research centre Eriksholm, Denmark, I worked on strategies to enable hearing impaired users to self-adjust their hearing aids, both on experimental platforms and with instruments in the market (see my publications from 2002). I am proud to have developed the level detector (see my patent WO2003081947) that is at the core of Oticon's Speech Guard Technology. It is deeply satisfying to see the fruits of my work being used in Oticon's high-end hearing aids.

At the Telefonica Research Lab in Barcelona, I used machine-learning technologies to study complex systems in the field of Web Intelligence. I enjoyed leading a team of programmers that worked in location based advertising and I got insight in technologies that allow collecting data from mobile apps without violating the privacy of the users. The skills I developed during that time are useful in the analysis of Big Data.

During my time in Oldenburg and in Berlin, I gained experience in Auditory brainstem responses, multi-channel EEG (NeuroScan) and MRI.

Patents

- WO2013075848A1 System and method for signal level detection (2013) Neumann J., Mendez N., Kinsbergen J., Wack N., Jacoti bvba, Belgium
- WO2012066149A1 Personal communication device with hearing support and method for providing the same (2012) Beisler A., Hazan A., Kinsbergen J., Joachim Neumann J., Offeciers E., Zarowski, A., Jacoti bvba, Belgium
- WO2003003349A1 Method for noise reduction and microphone array for performing noise reduction (2002) Neumann, J. and Laugesen, S., Oticon AS, Denmark
- WO2003081947A1 Method for dynamic determination of time constants, method for level detection, method for compressing an electric audio signal and hearing aid, wherein the method for compression is used (2003) Neumann, J., Oticon AS, Denmark
- WO1998003114A1 Method and device for detecting a reflex of the human stapedius muscle (1998) Kollmeier, B. and Neumann, J.

Publications in peer-reviewed Journals

- Integration of audiovisual sensors and technologies in a smart room. Neumann, J. et. al. Journal of Personal and Ubiquitous Computing, 2009, pp 15-23
- Multimodal Integration of Sensor Network. Neumann, J. et. Al. In: IFIP International Federation for Information Processing, Computer Science, Springer Boston, 204/2006, p. 312-323
- Somatotopic source arrangement of 600 Hz oscillatory magnetic fields at the human primary somatosensory hand cortex (1997). Curio G, Mackert BM, Burghoff M, Neumann J, Nolte G, Scherg M, Marx P. Neurosci. Lett. 1997 Oct 3;234(2-3):131-4.
- Interaction of otoacoustic emissions with additional tones: suppression or synchronization? (1997) Neumann, J., Uppenkamp, S. and Kollmeier, B. Hearing Research, 103(1), p. 19-27.
- Recording techniques, theory and audiological applications of otoacoustic emissions (1997) Neumann, J. Dissertation, Universität Oldenburg, Medical Physics, Oldenburg, Germany.
- Relation between notched-noise suppressed TEOAE and the psychoacoustical critical bandwidth (1997) Neumann, J., Uppenkamp, S. and Kollmeier, B. Journal of the Acoustical Society of America, 101(4), p. 2778-2788.
- Suppression and Synchronization of otoacoustic emissions using complex tones. (1997) Uppenkamp, S., Neumann, J. and Kollmeier, B. In: Diversity in auditory mechanics, editor: Lewis, World Scientific, Singapore, Singapore, p. 277-283.
- Detection of the Acoustic Reflex below 80 dB HL (1996) Neumann, J., Uppenkamp, S. and Kollmeier, B. Audiology and Neuro-Otology, 1(6), p. 359-369
- Otoacoustic emissions from normal hearing subjects: some experimental results in connection to psychoacoustics (1996). Uppenkamp, S. and Neumann, J. In: Psychoacoustics, Speech and Hearing Aids, editor: Kollmeier, World Scientific, Singapore, p. 19-24.
- Chirp Evoked Otoacoustic Emissions (1994) Neumann, J., Uppenkamp, S. and Kollmeier, B. Hearing Research 79, 17-25
- Evozierte otoakustische Emissionen bei Erwachsenen: Auswertekriterien für den klinischen Einsatz (1992) Uppenkamp, S., Neumann, J., Aurbach, G. and Kollmeier, B., HNO 40, 422-428.

Contributions to Conferences

- Event Detection in Communication and Transportation Data (2013) Neumann, J. Zhao, M. Karatzoglou, A. Oliver N., In proceeding of 6th Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA)
- The Intheat(R) concept: towards affordable advanced hearing support systems in emerging markets (2010) Neumann J., Kinsbergen J., Wack N., Zarowski A., Manikoth M., Vaid N., Kameswaran M., Offeciers E. 8th Annual Conference of Cochlear Implant Group of India (CIGICON)
- Real-time Synchronization of multimedia streams in a mobile device (2011) Xavier A., Macrae, R., Neumann, J. N. Oliver, S. Dixon. ADMIRE Workshop within ICME 2011

- The "Map Trap"? An evaluation of map versus text-based interfaces for location-based mobile search services (2010) Church, K., Neumann, J., Cherubin, M., and Oliver N., In: Proceedings of the World Wide Web (WWW '10). ACM
- SocialSearchBrowser: A novel mobile search and information discovery tool (2010) Church, K., Neumann, J., Cherubin, M., and Oliver N., In: Proceedings of the International Conference on Intelligent User Interfaces (IUI '10). ACM
- Understanding and Motivating Shared Bicycling Users (2013) Froehlich, J. Neumann, J., and Oliver, N.
- Sensing and Predicting the Pulse of the City through Shared Bicycling. Froehlich, J. Neumann, J., and Oliver, N. (2009) Twenty-First International Joint Conference on Artificial Intelligence (IJCAI-09), Pasadena, California, USA, July 11 - 17, 2009
- Measuring the Pulse of the City through Shared Bicycle Programs. Froehlich, J., Neumann, J., and Oliver, N. (2008) International Workshop on Urban, Community, and Social Applications of Networked Sensing Systems - UrbanSense08, Raleigh, North Carolina, USA, November 4, 2008. http://sensorlab.cs.dartmouth.edu/urbansensing/papers/froehlich_urbansense08.pdf
- Context Awareness Triggered by Multiple Perceptual Analyzers. Neumann, J., Casas, J. Proceeding of the conference on Emerging Artificial Intelligence Applications in Computer Engineering, 2007, 371-383
- User preference fitting: challenges to common belief in the industry (2002) Lunner, T., Neumann, J. and Sivertsen, T. Oticon Research Centre Eriksholm, Denmark. Proc. 2002, Lake Tahoe, CA
- Measuring individual amplification need (2002) Behrens, T., Lunner, T., Neumann J and Nielsen, C., International Hearing Aid Conference, Lake Tahoe, CA
- Welche Verstärkung wünschen Schwerhörige? Neumann, J., Deutsche Gesellschaft für Audiologie, fünfte Jahrestagung, Zürich, 27. Februar 2002
- Just Follow Conversation - Eriksholm Version. Neumann, J., Søgaard Jensen, N. Eriksholm public report 2000 052-08-01
- Aufzeichnungen von simultan evozierten otoakustischen Emissionen mit Tonkomplexen (1995) Neumann, J., Uppenkamp, S. and Kollmeier, B. Fortschritte der Akustik - DAGA 1995, editors: Arnold, Hirsekorn, DEGA e.V., Oldenburg, p. 235-238.
- Zusammenhang von Frequenzgruppenbreite und otoakustischen Emissionen. (1995) Neumann, J., Uppenkamp, S. and Kollmeier, B. Fortschritte der Akustik - DAGA 1995, editors: Arnold, Hirsekorn, DEGA e.V., Oldenburg, p. 231-234.
- Breitbandige Anregung und Synchronisation von simultan evozierten otoakustischen Emissionen (1994) Uppenkamp, S., Neumann, J. and Kollmeier, B. Fortschritte der Akustik - DAGA 1994, editors: Arnold, Hirsekorn, DEGA e.V., Oldenburg, p. 1041-1044.
- Suppression of transiently evoked otoacoustic emissions (1994) Neumann, J., Uppenkamp, S. and Kollmeier, B. J. Acoust. Soc. Am. 95
- Periodicity in the spectrum of transiently evoked otoacoustic emissions (1994) Uppenkamp, S. and Neumann, J. J. Acoust. Soc. Am. 95
- Interaktion von otoakustischen Emissionen mit zusätzlichen Tönen - Suppression oder Synchronisation? (1994) Neumann, J., Uppenkamp, S. and Kollmeier, B. Fortschritte der Akustik - DAGA 1996, editors: Portele, Hess, DEGA e.V., Oldenburg, p. 374-375.
- Chirp Signals with low peakfactors and freely selectable power spectra (1993) Neumann, J., Uppenkamp, S. and Kollmeier, B. In: Contributions to Psychological Acoustics - 6th Oldenburg Symposium on Psychological Acoustics, editor: Schick, bis-Verlag, Oldenburg, Oldenburg, p. 89-98.
- Computergestützte Verfahren zur Hördiagnostik und Hörgeräteanpassung (1993) Neumann, J., Union der Hörgeräte Akustiker. Fortbildungs Tagung 1993
- Van der Pol-Oszillator als Modell für schmalbandig angeregte otoakustische Emissionen (1993) Uppenkamp, S., Neumann, J. and Kollmeier, B. Fortschritte der Akustik - DAGA 1993, DPG Kongreß-GmbH, Bad Honnef, p. 728-731
- Verschiedene Aspekte zur Entstehung otoakustischer Emissionen (1993) Neumann, J., Siemens-Colloquium audiologisch tätiger Physiker und Ingenieure 1993
- Narrowband Stimulation of Otoacoustic Emissions (1993) Uppenkamp, S., Neumann, J. and Kollmeier, B. In: Contributions to Psychological Acoustics - 7th Oldenburg Symposium on Psychological Acoustics, editor: Schick, bis-Verlag, Oldenburg, Oldenburg, p. 81-88.
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- Entwicklung und Einsatz optimierter Stimuli für otoakustische Emissionen (1992) Neumann, J., Uppenkamp, S. and Kollmeier, B., Jahrestagung der Arbeitsgemeinschaft ERA November 1992 in Heidelberg
- Optimierung von Stimuli für evozierte otoakustische Emissionen (1991) Neumann, J., Uppenkamp, S. and Kollmeier, B. Fortschritte der Akustik - DAGA 1991, DPG Kongreß-GmbH, Bad Honnef, p. 617-620.
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