**Joachim Neumann**

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**Professional experience**

October 2013 – now independent IT Consultant and CEO of VISAMED IT GmbH

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 Inthear(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

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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.

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Verschiedene Aspekte zur Entstehung otoakustischer Emissionen (1993) Neumann, J., Siemens-Colloqium 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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Chirp-evozierte otoakustische Emissionen bei Schwerhörigkeit (1992) Neumann, J., Uppenkamp, S. and Kollmeier, B., Fortschritte der Akustik - DAGA '92, Seite 1041-1044. DPG GmbH, Bad Honnef, 1992.

Chirpsignale mit geringem Peakfaktor und frei wählbarem Leistungsspektrum (1992) Neumann, J., Koch, R., and Kollmeier, B. Fortschritte der Akustik - DAGA 1992, DPG Kongreß-GmbH, Bad Honnef, p. 749-752.

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Die Analyse otoakustischer Emissionen hinsichtlich ihrer Prognosefähigkeit für Hörschwellen mittels Backpropagation-Netzwerken (1990) Neumann, J. and Müller, A. Frey, D., Bericht über den 37. Kongress der Deutschen Gesellschaft für Psychologie, Kiel, p 767. DPG GmbH, Hogrefe, Göttingen.