

**1. Full name and date**

- name: Huotilainen (née Colérus), Minna Johanna
- gender: female
- date of writing the CV: 20.4.2018

**2. Date and place of birth, nationality, current residence**

- date and place of birth: September 23, 1968, Helsinki, Finland
- citizenship: Finnish
- current residence: Intiankatu 19, 00560 Helsinki, Finland

**3. Education and degrees awarded**

- degrees: PhD from Helsinki University of Technology (presently Aalto University), Espoo, major in Acoustics and signal processing in 1997, verification address: kirjaamo@aalto.fi, and MSc from Helsinki University of Technology (presently Aalto University), Espoo, major in Acoustics and signal processing in 1992
- title of docent: docent (adjunct professorship) in cognitive science, University of Helsinki, 2003

**4. Other education and training, qualifications and skills**

- 50 ECT studies in university pedagogy and in dissemination of scientific knowledge, UH

**5. Language skills**

- mother tongue Finnish, Proficient user in English and Swedish (official state certificate 1992), Independent user French and German, basic skills of Finnish sign language

**6. Current position**

- Professor of Educational Sciences, University of Helsinki, Finland, 1.11.2017-

**7. Previous work experience**

- Lecturer of neuroscience, University of Helsinki, Finland, 6-10/2017
- Erik Allart Fellow, Swedish Collegium for Advanced Studies, Uppsala, Sweden, 1.9.2016-15.6.2017, job description: leading research work in research teams in Sweden and Finland
- Research Leader, FinnBrain Cohort, University of Turku, 2/2016-8/2016
- Professor of Brain, Learning and Education, UH, 9/2014-12/2015, 2-8/2011
- Research professor, Finnish Institute of Occupational Health, 10/2013-2/2016
- Senior research scientist, Finnish Institute of Occupational Health, 8/2010-9/2013
- Professor of Cognitive Science, UH, 1-12/2012 (substitute for Prof. K. Krause)
- PI, Finnish Centre of Excellence in Interdisciplinary Music Research, UH, 2008-2013
- PI, BrainTuning, and Minet, UH, 2 EC-funded projects, 2006-2009
- Research Fellow, Helsinki Collegium for Advanced Studies, 2003-2006
- visits abroad: Massachusetts General Hospital, Boston, USA, prof. J. Belliveau, 1994, Hungarian Academy of Sciences, Budapest, Hungary, prof. I. Winkler, 1995, poste verte position at INSERM research institute, prof. O. Bertrand, Lyon, France, 1998-1999 and 2001
- career breaks: maternal leaves in 1997 and 2001

**8. Recent research funding as well as leadership and supervision**

- most recent research funding:
  - 2010-2015 the Finnish Cultural Foundation, Language processing at the brain level and the possibilities of special education, at UH, 150 000€ head of project
  - 2010-2013 the Academy of Finland, Language and music in the brain, at UH, 156 090€ head of project
  - 2010-2013 the Academy of Finland, FinnBrain National Cohort on Brain Development in the Young, at UH, 83 000€ head of individual subproject, consortium leader: prof. H. Karlsson
  - 2010-2013 the European Science Foundation and Academy of Finland, at UH, 255 520€, ERAnet Neuron, Attention and sound perception in learning, head of project

- 2010-2014 Salwe consortium and Tekes, at FIOH, 1.4M€ Mind and body, PI & head of sub-project, consortium leader: K. Müller
- 2012-2015 the Academy of Finland, at FIOH, 1.4M€ Handling Mind, head of sub-project, consortium leader: Prof. P. Seitamaa-Hakkarainen
- 2016-2017 Jubileumsfond, ca. 40 000€ Early learning and its consequences, at Uppsala University Swedish Collegium for Advanced Studies, head of project
- responsible supervisor of 2 post-doc researchers: Dr. Anke Sambeth and Dr. Alexis Bosseler
- supervised 12 doctoral theses:
  - PhD Anna Shestakova, "Sensory intelligence in the auditory cortex: Brain responses to native and non-native phonetic stimuli", UH, 2004, co-supervised with prof. Näätänen
  - PhD Sari Ylinen, "Cortical representations for phonological quantity", UH, 2006, highest grade Laudatur, main supervisor (co-supervised by Dr. da Silva)
  - PhD Anu Kujala, "Cortical processing of speech and non-speech sounds in adults and newborns", at the Department of Psychology, UH, 2006, co-supervised with Prof. Alho
  - PhD Tuomas Teinonen, "Language learning in infancy", UH, 2009, highest grade Laudatur, main supervisor (co-supervised by Prof. Fellman), UH award best thesis 2009
  - PhD Satu Pakarinen, "Towards Optimal Testing of Auditory Memory : Methodological development of recording of the mismatch negativity (MMN) of the auditory event-related potential (ERP)", UH, 2011, co-supervised with Prof. Näätänen
  - PhD Hanna Hakomäki, "Storycomposing as a Path to a Child's Inner World", at the Department of Music, JU, 2013, co-supervised with Prof. J. Erkkilä
  - PhD Eino Partanen, "The neural basis of speech sound discrimination from infancy to adulthood", UH, 2013, main supervisor (co-supervised by prof. T. Kujala)
  - PhD Vesa Putkinen, "Musical activities and the development of neural sound discrimination", UH, 2014, main supervisor (co-supervised by prof. M. Tervaniemi)
  - PhD Paula Virtala, "The neural basis of Western music chord categorisations – effects of development and music expertise", UH, 2015, co-supervised with prof. M. Tervaniemi
  - PhD Holger Hövel, "Auditory ERPs and cognitive outcome after very preterm birth", Lund University, 2015, main supervisor (co-supervised by prof. V. Fellman)
  - PhD Ritva Torppa, "Pitch-related auditory skills in children with cochlear implants: The role of auditory working memory, attention and music", UH, 2015, co-supervised with prof. M. Vainio and Dr. A. Faulkner (UCL)
  - PhD Laura Sokka, "Burnout in the brain at work", UH, 2017, co-supervised with prof. K. Alho
  - Currently under supervision or co-supervision: M.Sc. Katri Saarikivi, attentive functions in children with musical hobbies, M.Sc. Lauri Ahonen, neural correlates of judgements, M.Sc. Tanja Linnavalli, musical activities and children's cognitive development, all from UH, MD Shashar Sheshank, early brain indices of emotion processing, Univ. Turku
- supervised undergraduate students: I have supervised more than 30 master's and bachelor theses to Universities of Helsinki, Aalto, Turku, and Jyväskylä, and several practical trainees at UH

## 9. Merits in teaching and pedagogical competence

- pedagogical and dissemination training
  - "Yliopistopedagogiikan perusteet" (Basics of university pedagogy), 5 ECT, "Gender in university pedagogics" 5 ECT, "Ohjaus yliopistossa" (Guidance/supervision in university), 5 ECT, "Opetusmenetelmät" (practical teaching technology training), 5 credits, "Teaching through English", 3 ECT, "Multiculturalism and gender in teaching", 5 ECT, "Ethics in research and teaching", 2 ECT, "Communicating scientific expertise in the society", 5 ECT, 2013, "Science journalism", 5 ECT, 2013, "Expertise and scientific communication in the social media", 5 ECT, 2013, "Institutions and practices in disseminating scientific knowledge", 5 ECT, 2014, "Science literature and conveying scientific knowledge", 5 ECT, 2014, "Pedagogical practices", 5 ECT, 2014
- involvement in curriculum planning: Member of the committee planning the new master's program Brain, Mind & Communication, UH, External evaluator of the master's program in biotechnology

at Aalto University, involved in planning the curricula of Graduate Schools of Pythagoras (for music) and Psychology

- involvement the implementation of courses:
  - Responsible teacher of the following courses: Biology of Cognition, 3 ECT (cognitive science), Orientation towards work life, 1 ECT (cognitive science), User experience work course, 5 ECT (cognitive science), Cognitive Neuroscience of Music, 5 ECT (psychology), Journal club of music neuroscience, 2 ECT (psychology), including development of the teaching and assignment methods. In addition, visiting lecturer in a large number of courses at UH, University of Turku, Aalto University, University of Jyväskylä, Sibelius Academy (presently Helsinki University of Arts), University of Eastern Finland
- supervision of theses: (co-)supervised 11 doctoral theses, see list above

## 10. Awards, prizes and honours

- Honorary member of Intelligenzia, the Finnish organization of Cognitive Science at UH
- Sokrates Award for exceptional dissemination of science to the public, Skepsis ry
- J.V.Snellman Award for exceptional dissemination of science to the public, University of Helsinki

## 11. Other academic merits

- service as a member of the opponent team: Dr. Blaise Yvert in INSERM, Lyon, France, in 2002, on intracranial responses in humans
- service as a pre-examiner: Dr. David Pérez González, Auditory Neurophysiology, University of Salamanca, Spain, in 2007, Dr. Päivi Nevalainen, developmental neuroscience, MEG measurements of somatosensory and auditory responses in infants, UH, 2010, Dr. Mikko Peltola, developmental neuroscience, face and emotion perception in infants, U Tampere, Finland, 2011, and Sini Haapala, speech development in children with ear infections, U Turku, Finland, 2016, Juho Strömmer, ageing, physical activity and cognition, U Jyväskylä, 2018
- service as an opponent of a doctoral dissertation: Dr. Céline Marie at the Université de la Méditerranée, Faculté de Médecine, “Influence de l’expertise musicale et linguistique sur le traitement des sons linguistiques et non-linguistiques”, 2007, Dr. Anu Holm at the Aalto University, medical physics, 2010, and Sini Haapala, speech development in children with ear infections, U Turku, 2016, Juho Strömmer, ageing, physical activity and cognition, U Jyväskylä, 2018
- evaluation of academic competence: several times for title of docent in UH, Aalto and Tampere
- member of international peer evaluation committees of funding applications: Member of European Research Council in the international peer evaluation committee of StG, CoG, and AdG grants several times, evaluator for many foreign national scientific funding agencies, including the Greek National Science funding agency, British Medical Research Council, The Portuguese Foundation for Science and Technology, and Agence Nationale de la Recherche in France
- memberships and positions of trust in scientific and scholarly societies: Board Member of the Finnish Brain Research Society (member society of FENS), Member of the Ethical Committee of the Faculty of Behavioural Sciences, UH, 2004-2010, Member of Scientific committees: the International Developmental Brain Research Symposium, Helsinki, 2004, the Helsinki School for Cognitive Neuroscience 6 times, and the International Conference on Mismatch Negativity and Its Clinical Applications 3 times
- membership in steering committees: member of the steering group of several PhD theses in UH, Aalto and Jyväskylä, steering group member of several Tekes-funded projects 2008-16 at FIOH
- referee for scientific and scholarly journals: Biological Psychology, Clinical Neurophysiology, Psychophysiology, Schizophrenia Research, European Journal of Cognitive Neuroscience, Applied Acoustics, Journal of the Acoustical Society of America, NeuroImage, Journal of Neuroscience, and Seminars in Neonatology, Frontiers (several journals), PlosOne.
- administrative responsibilities at research organisations, responsibilities in the higher education community: Member of organization committee of the Tempus International Master’s Programme

in Neuroscience, Supervisor and teacher in national graduate schools: Pythagoras Graduate School of Music Research, Langnet Graduate School of Language Research (Language learning division) 2005-2012, and the National Graduate School of Psychology 2003-2012

- invited keynote lectures abroad: 5<sup>th</sup> International Conference on the Mismatch Negativity and its clinical applications, Budapest, Hungary, April 2009, 7th Triennial Conference of the European Society for the Cognitive Sciences of Music, 2009, International Conference on Pediatric Neurology, 2010, 2016

## 12. Scientific and societal impact of research

- total number of publications: 155 articles authored or co-authored in international peer-reviewed journals, 212 scientific publications of different types listed in total, author of 3 books popularizing neuroscience (see separate List of publications for details)
- 5 recent publications:
  - Saarikivi, K.,...& Huotilainen, M. Cognitive flexibility modulates maturation and music-training-related changes in neural sound discrimination. *Eur J Neurosci* 2016, in press. building models between cognitive benefits of musical activities and cognitive skills in children
  - Poikonen, H.,...& Huotilainen, M. Event-related brain responses while listening to entire pieces of music. *Neurosci* 2016, 312, 58-73. new ERP methods to natural stimulation conditions with continuous music
  - Putkinen, V.,...& Huotilainen, M. Promises of formal and informal musical activities in advancing neurocognitive development throughout childhood. *Ann New York Acad Sci* 2015. first findings of the role of informal musical activities in developing cognition in children
  - Torppa, R., Faulkner, A., Huotilainen, M., et al. The perception of prosody and associated auditory cues in early-implemented children: The role of auditory working memory and musical activities. *Int J Audiol* 2014. effects of musical training and activities for cognition and brain responses in the hearing-impaired
  - Partanen, E.,...& Huotilainen, M. Learning- induced neural plasticity of speech processing before birth. *PNAS* 2013: our work demonstrating the learning capacity of the human brain prior to birth
- merits related to the production and distribution of research results and research data: member of the Cognitive Brain Research Unit Steering Group setting up the ERP MMN paradigm database that contains paradigms and stimuli to be used in MMN experiments
- patents: 1 patent on EEG electrode and system
- merits in science communication and expert assignments in the media: I frequently appear in events popularizing science, and in local and national media, both in newspapers, magazines, radio and TV, summing up to more than 100 entries (see [tuhat.helsinki.fi](http://tuhat.helsinki.fi) for detailed info). I frequently give talks in events for the general public, for several patient organizations, learning groups, the elderly, parents' associations, schools and workplaces etc. For example in spring 2016, I appeared in the national TV evening and morning news as an interviewed expert, in several newspaper and magazine articles, and in three radio programmes. Author of 3 books popularizing neuroscience. In addition, I am an eager blogger, disseminating scientific information in many blogs regularly. I am active in social media, disseminating scientific results and engaging in discussions.