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About

Dr Ansgar Koene is a postdoctoral research fellow working on human sensory motor control. Based on his multi-disciplinary background in psychology and robotics he also leads the **Behaviour Informatics (http://behaviorinformatics.bham.ac.uk/)** project for facilitating interdisciplinary sharing of information related to human, animal and robot behaviour.

Qualifications

M.Sc. in Electrical Engineering (specialized in Control Systems) from Delft University of Technology, Netherlands

Ph.D. in Physics from the Helmholtz Institute at Utrecht University, Netherlands

Biography

Dr Ansgar Koene did graduate work on Fuzzy Neural Networks for system identification at Delft Univsersity of Technology and completed a PhD on the role or "Eye mechanics and their implications for eye movement control" at Utrecht University. He subsequently worked on modeling the brainstem oculomotor control circuit at the INSERM U534 "Espace et Action" in Lyon, did Psychophysics experiments on audio-visual sensory integration as well as visual salience at the Psychology department at University College London, worked on a biologically inspired eye-head gaze control system for a humanoid robot at the Advanced Telecommunications Research institute (ATR) in Kyoto, Japan, did some visual perception psychophysics and fMRI at the Psychology department of the National Taiwan University (NTU) in Taipei, developed an integrated computational model of various brain structures (Amygdala, Basal Ganglia, Hippocampus) for the control of a simulated robot rat at the Psychology department at the University of Sheffield, UK and worked on computational modeling of decision making and action selection based on reinforcement learning theories at the RIKEN institute in Tokyo, Japan before taking up the post of Research Fellow at Birmingham University.

Research

Core research interests focus on understanding how humans and other living creatures perceive and behave, respond and act upon their environment and how this dynamic interplay shapes us into who we are. In recognition of the broad scope of this question Ansgar Koene is a strong believer in the need for inter- and multi-disciplinary approaches. Though his work has primarily taken the form of computational neuroscience he has also performed psychophysical experiments with healthy human subjects, been involved in neural imaging experiments and contributed towards the development of a humanoid robot.

Based on the philosophy of 'understanding through creating' he believes that bio-mimetic and biologically inspired computational and robotic engineering can teach us not only how to build more flexible and robust tools but also how actual living creatures deal with their environment. Ansgar Koene is therefore a strong believer in the fertile information exchange between Natural-, Social-science and engineering research disciplines.

Current areas of investigation include:

- Establishing a **Behaviour Informatics platform (http://behaviorinformatics.bham.ac.uk/)** to provide open access to behaviour data and models for a deeper, more integrated understanding of human and animal behaviour.
- Studying of Human-Human manual interactions for the purpose of improving Robot-Human interaction (part of the **CogLaboration (http://www.coglaboration.eu)** project).
- Reinforcement learning of temporal context patterns

Publications

Journal papers

Yu Z-E, Koene A, Jeng S-K & Chen C-C, "Evolving the Intercolumnar Connection Topologies in the Primary Visual Cortex: A Neural Model", PLoS ONE, submitted May 18, 2012.

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Koene A, "**A model for perceptual averaging and stochastic bistable behavior and the role of voluntary contol** (https://sites.google.com/site/arkoene/Koene_NeuralComp_18_12_3068_2006.pdf?attredirects=0) ", Neural Computation, 18(12):3069-96. 2006.

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Fujisaki W, Koene A, Arnold D, Johnston A & Nishida S, "**Visual search for a target changing in synchrony with an auditory signal** (https://sites.google.com/site/arkoene/FujisakiKoeneArnoldJohnstonNishida_P.pdf?attredirects=0) ", Proceedings of The Royal Society of London. Series B, Biological Sciences, Apr 7; 273(1588):865-74. 2006.

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Book Chapters

Zhaoping Li, Keith A. May & Ansgar Koene, "Some finger prints of V1 mechanisms in the bottom up saliency of visual selection", in Computational Modelling in Behavioural Neuroscience: Closing the Gap between Neurophysiology and Behaviour (Advances in Behavioural Brain Science), Heinke D. & Mavritsaki E. (Eds.), London: Psychology Press. 2008

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PhD Thesis

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Workshop organizing

Ansgar R. Koene. "Behavior Informatics: data bases, data mining and experiments in virtual worlds" at the CNS 2012 Atlanta/Decatur (USA) meeting of the Organization for Computational Neuroscience, 21-26 July, 2012

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