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## ARTIFICIAL INTELLIGENCE IN HEALTH CARE

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Artificial Intelligence (AI) is becoming more and more ubiquitous, and AI also invades health care and related fields ever more. And I believe this is a good thing. Primarily inspired by work we have done at the Alan Turing Institute Almere (ATIA) and Utrecht University (UU), in this invited talk I'll review a number of applications of AI in health care and medicine. I'll talk about advanced diagnostic techniques based on machine learning, modeling techniques and also artificial companions to assist with the care of patients in a hospital or home setting. These companions are able to monitor the behavior of patients, help them remind of taking medication, but also can have conversations with them giving them the feeling that they are cared for. This is important in times where health care is economized upon like we face in The Netherlands. Moreover, so-called serious games can be used to train health care professionals. In Utrecht we have worked on the personalization of this type of games involving automatic adaptation to knowledge and skills of the user / trainee. I also speak on the work we have done in Utrecht on emotion modeling, a relatively new subject in AI. By studying psychological literature we have extracted logical models of various aspects of emotions, in particular triggering / appraisal of emotions. I'll review what we have done in the past decade or so on logics of emotions. The aim is to put these formal models at work in systems where (emotional) software agents steering virtual characters can render these more believable. I believe that these models can also increase the efficacy of the above-mentioned companions in human-robot interactions.

### Biography

John-Jules Ch. Meyer studied Mathematics with Computer Science and Digital Signal Processing at Leyden University. He obtained his Ph.D. from the Vrije Universiteit in Amsterdam on a subject in theoretical computer science. Since 1993 he has been a full professor of computer science, and artificial intelligence in particular, at Utrecht University. At the moment he is heading the Artificial Intelligence Division within the Department of Information and Computing Sciences and is programme leader of the AI Master of the UU. Currently he is also the CSO of the Alan Turing Institute Almere, which specializes in multi-disciplinary research for the health sciences, and the CEO of Companion Diagnostics Ltd. as a part of Emotional Brain Ltd. He has over 500 peer-reviewed publications in international journals and conference proceedings. In 2005 he was appointed as a Fellow of the European Coordinating Committee for Artificial Intelligence.

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