Heterogeneous Systems for AI

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Abstract. This talk will cover heterogeneous approaches to optimized systems for AI. Both training and classification tasks will be discussed along with examples of optimized hardware. We end by discussing how one might attempt a real-time simulation of a human-sized brain on the Coral/Summit supercomputer, currently the world's most powerful computer.

Biography

Harm Peter Hofstee (born 1962) is a Dutch physicist and computer scientist who currently is a distinguished research staff member at the IBM Austin Research Laboratory, USA, and a part-time professor in Big Data Systems at Delft University of Technology, Netherlands. Hofstee was born in Groningen and obtained his master's degree in theoretical physics of the University of Groningen in 1988. He continued to study at the California Institute of Technology where he wrote a master's thesis Constructing Some Distributed Programs in 1991 and obtained a PhD with a thesis titled Synchronizing Processes in 1995. He joined Caltech as a lecturer for two years and moved to IBM in the Austin, Texas, Research Laboratory, where he had staff member, senior technical staff member and distinguished engineer positions. Hofstee is best known for his contributions to Heterogeneous computing as the chief architect of the Synergistic Processor Elements in the Cell Broadband Engine processor used in the Sony Playstation3, and the first supercomputer to reach sustained Petaflop operation. After returning to IBM research in 2011 he has focused on optimizing the system roadmap for big data, analytics, and cloud, including the use of accelerated compute. His early research work on coherently attached reconfigurable acceleration on POWER7 paved the way for the new coherent attach processor interface on POWER8. Hofstee is an IBM Master Inventor with more than 100 issued patents and a member of the IBM Academy of Technology.