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The potential capability of deep learning in cardiac arrhythmia classification

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Cardiac arrhythmia symptoms are detected by ECG devices with at least 8 leads. Due to the large amount of data, arrhythmia classification with high precision is usually performed by cardiologists with considerable time consumption. Automatic arrhythmia classifiers based on an artificial intelligence algorithm can help cardiologists

to obtain better precision and reduce time-consumption. In this presentation, we compare optimization methods, machine learning methods, and deep learning methods in cardiac arrhythmia classification. A high-performance classifier based on a deep learning algorithm is a viable direction of the future research.

Biography

Janet Meiling Wang Roveda is a Professor in the Department of Electrical and Computer Engineering at the University of Arizona in Tucson. She received her M.S. and Ph.D. degrees in Electrical Engineering and Computer Sciences from the University of California, Berkeley in 1998 and 2000, respectively. She was a recipient of the NSF career award and the Presidential Early Achievement Award for Science and Engineering at White House in 2005 and 2006, respectively. She was the recipient of the 2008 R. Newton Graduate Research Award from the EDA community, the 2007 USS University of Arizona Outstanding Achievement Award, the 2016 Da Vinci Award, and the 2017 ACABI fellow for the Biomedical Engineering Advancement. She received the best paper award in journal of clean energy in 2013, ISQED 2010 as well as best paper nominations in ASPDAC 2010, ICCAD 2007, and ISQED 2005. Her primary research interests focus on robust VLSI circuit design, biomedical instrument design, Smart grid, VLSI circuit modeling/design and analysis, and low power multi-core system design. She has over 200 publications.

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