

Nanoelectronics and Information Technology

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A revolution is under way. The singularity is near. This is the beginning of the second machine age. Statements like those from famous researchers in the fields of futuristics, information systems, economics, and technological change demonstrate how digital technology has changed our lives and our societies dramatically, and will revolutionize them in the near future. Self-driving cars, algorithms that beat the best human players in Jeopardy!, computers that can learn and that you can talk to make this “advanced technology indistinguishable from magic” (A. Clarke). Information technology is the enabler of this magic. In my presentation I will give an overview over the various aspects of digital technology including the fabrication and application of logic and memory devices, storage systems, computational concepts and architectures. Novel materials, logic and storage concepts beyond today’s Si-based CMOS (complementary metal oxide semiconductor) technology will be described. Societal consequences of global and comprehensive digitization will also briefly be noted.