Perceptual Computing and the Human Experience

by Angela Guess

Amit Sheth, Pramod Anantharam, and Cory Henson have published a great new article in IEEE Computer, "Semantic, Cognitive, and Perceptual Computing: Paradigms That Shape Human Experience." In a preprint version of the article, the trio writes, "While the debate about whether AI, robots, or machines will replace humans is raging (among Gates, Hawking, Musk, Thiel, and others), there remains a long tradition of viewpoints that take a progressively more human-centric view of computing. A range of viewpoints, starting from machine-centric to human-centric computing, include intelligent machines, augmenting human intellect, man-machine symbiosis, computing for human experience among many others. Key inspiration for developing intelligent computing and machines that exhibit intelligence borrows from three important human capabilities: semantics (as associated with semiotics), cognition, and perception."

They continue, "In the era of an exploding amount of rapidly changing heterogeneous, multimodal data, emerging intelligent computing needs to take inspiration from these three capabilities to complement humans with a contextual and personalized interpretation of data, which is more readily consumable and actionable for people. Toward this goal, the computing paradigm of semantic computing has received substantial attention during the last 15 years and cognitive computing is receiving intense attention now. Our focus in the upcoming article in IEEE Computer [Preprint] is to characterize and define an emerging paradigm in this lineage, which we term perceptual computing. Taking an inspiration from the title of Douglas Hofstadter's book,Gödel, Escher, Bach: An Eternal Golden Braid, perceptual computing forms the third strand in the golden braid, closely intertwined with semantic and cognitive computing, to enable future intelligent computing."

Read the full article in IEEE Computer.