Machining a Sixth Sense: Intuition

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Intuition is a human sixth sense. We ask whether it can be machined.

The *sixth sense* is defined as a perception similar to the five senses (sight, smell, hearing, taste, and touch), but it is not one of them. A sixth sense is a keen intuitive power, such as a mother's intuition (a feeling your child needs you) or a "Spidey-sense" (a feeling of nearby danger). This human quality is used in day-to-day life to make quick and crucial decisions. Malcolm Gladwell,[1] in *Blink: The Power of Thinking Without Thinking*, states "decisions made very quickly can be every bit as good as decisions made cautiously and deliberately." Intuition is extremely useful in decision making—but our question is, can it be machined?

We discussed and questioned machining wisdom previously[2]; in this message, we are questioning the machining of another human characteristic: intuition. Intuition is frequently misused, misunderstood, and interchanged with instinct, so let's define them.

Instinct is a natural aptitude and a complex response. Instincts are preset patterns of behavior that occur due to specific preprogrammed stimuli common in biological species. Examples would be a bird building a nest or the behaviors of bees and ants. Kirton[3] provided a five-point definition of instinct:

1. There is a complicated pattern of behavior.
2. This behavior must have survival value for the species.
3. This behavior is not learned.
4. The behavior must be common to the species.
5. The behavior is set off by a specific trigger.

Some believe humans do not have instinct. Human behaviors that might be considered instinct would be reflexes or learned.

Intuition is the ability to know something without having proof or conscious reasoning. In other words, it is an immediate understanding or decision that occurs without you knowing how you cognitively got there. One example would be understanding how someone feels. There are levels of intuition. Although not specifically agreed upon, generally, they are: gut instinct (for example, safety, security, and survival); heart-based intelligence (for example, courage, compassion, and communication); and strategic (for example, years of experience).

An example of gut instinct is discussed by de Becker[4] in his book *The Gift of Fear.* He posits that the basis for "personal security and threat prediction of potential predators lies in

his belief of the active listening to one's intuition." de Becker considers fear and intuition to be the same, where a person subconsciously picks up on potential threats and warnings.

The highest level of intuition is supported by research, which suggests that "clinical reasoning contains intuition informed by tacit knowledge."[5] For example, a runner has leg pain and sees a physical therapist. After an evaluation, it is determined that the issue is the patient's back—not the patient's leg.

This question has been pondered by others. In Penrose's 1991 book, *The Emperor's New Mind: Concerning Computers, Minds, and the Laws of Physics*,[6] he discusses this very question. Can machines be built with the capability of making the intuitive decisions that a human makes? The biggest concern and most fundamental problem of

artificial intelligence is being able to machine the "common sense informatic situation."[7] McCarthy[7] gave an example of how one should react when a bowl of hot soup is spilled on a tablecloth. Could a machine predict who will jump out of the way? A machine would need facts about human motivation, cloth absorption, hydrodynamics, and so forth.

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Further, what if a machine's intuition had malicious intent, where the machine impersonates humans or turns evil?[8] Whether or not you think intuition can be machined—if it were, would you trust it? Your mother would say "no." ▣

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