Artificial Cognitive Systems for Human-like Situation Awareness Ability

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Abstract: The Artificial Cognitive Systems (ACS) will be investigated for human-like functions such as vision, auditory, inference, and behavior. Especially, computational models and artificial HW/SW systems will be devised for Proactive Knowledge Development (PKD) and Self-Identity (SI). The PKD model provides bilateral interactions between robot and unknown environment (people, other robots, cyberspace). For the situation awareness in unknown environment it is required to receive audio-visual signals and to accumulate knowledge. If the knowledge is not enough, the PKD should improve by itself though internet and others. For human-oriented decision making it is also required for the robot to have self-identify and emotion. Finally, the developed models and system will be mounted on a robot for the human-robot co-existing society. Based on the computational models of PKD and SI, we would like to build functional modules for Knowledge Represenation, Knowledge Accumulation , Situation Awareness, Decision Making, and Human Behavior.