learning enable efficient and rapid distillation of knowledge from data. AI systems may become integral to everyday human life by interacting with physical and biological worlds.

[0005] There's a need to apply AI technologies to the future of work and life environments through the development and deployment of AI-powered infrastructures.

SUMMARY

[0005a] According to an aspect, the present disclosure refers to a system for providing an enclosure with intelligent computing capabilities, the system comprising: a physical sphere including physical spatial elements and temporal elements associated with the enclosure; a fusion system comprising:a foreplane including physical fabric, a perceptor subsystem, and an actuator subsystem, and a backplane including a communication infrastructure, computing and storage infrastructure, power infrastructure, redundancy, and cloud connections; and a digital sphere including an artificial intelligence ("AI") system coupled to the physical sphere by the fusion system, the AI system comprising: a subsystem of observation configured to receive data from the perceptor subsystem, the data corresponding to the physical spatial elements and the temporal elements, a subsystem of thinking configured to learn from, model, and determine a state of the enclosure based on the received data, and a subsystem of activity configured to generate decisions with the actuator subsystem based on the state of the enclosure according to a predetermined objective for the enclosure.

[0006] In an example, the present disclosure provides a system, apparatus, and methods for converting physical enclosures or enclosed spaces into intelligent computing systems. According to one embodiment, the system may comprise a physical sphere, a digital

sphere and a fusion system. The physical sphere may include physical spatial elements and temporal elements. The digital sphere may include an artificial intelligence ("AI") system coupled to the physical sphere by a fusion system. The AI system comprises a subsystem of observation configured to receive data from the perceptor subsystem, a subsystem of thinking configured to learn from and model the received data, and a subsystem of activity configured to generate decisions with actuators based on the learning and modeling of the subsystem of thinking. The fusion system may comprise a foreplane including physical fabric, a perceptor subsystem, an actuator subsystem, and an administrator console, and a backplane including a communication infrastructure, computing and storage infrastructure, power infrastructure, redundancy, and cloud connections.

[0007] According to another example, the system may comprise a physical sphere including physical spatial elements and temporal elements associated with an enclosure, a fusion system comprising a foreplane including physical fabric, a perceptor subsystem, and an actuator subsystem, and a backplane including a communication infrastructure, computing and storage infrastructure, power infrastructure, redundancy, and cloud connections, and a digital sphere including an artificial intelligence ("AI") system coupled to the physical sphere by the fusion

system. The AI system may comprise a subsystem of observation configured to receive data from the perceptor subsystem, the data corresponding to the physical spatial elements and the temporal elements, a subsystem of thinking configured to learn from, model, and determine a state of the enclosure based on the received data, and a subsystem of activity configured to generate decisions with the actuator subsystem based on the state of the enclosure according to a predetermined objective for the enclosure.

[0008] A perceptor subsystem may comprise one or more devices that include one or more sensors, on-sensor computing silicon, and embedded software. In one example, the perceptor subsystem may comprise at least one of optical, auditory, motion, heat, humidity, and smell sensors. In another example, the perceptor subsystem may comprise at least one of phone, camera, robotic, drones, and haptic devices. In yet another example, the perceptor subsystem may comprise medical equipment that assesses a state of health for biological actors within the enclosure.

[0009] The enclosure may comprise an enclosed physical space that serves a defined social economical purpose. The subsystem of thinking may be configured to model the received data according to a domain theme. A given enclosure may have its associated social/societal and/or natural meaning and related thematic focus based on the domain theme. For example, the domain theme may include at least one of a retail floor, school, hospital, legal office, trading floor, and hotel. In one embodiment, the generated decisions include tasks to achieve functions according to the domain theme. The subsystem of thinking may be further configured to build a model of the physical sphere, wherein the model includes a description of a semantic space and ongoing actions of the physical sphere. The AI system may be configured to train the model by learning relationships and responses to satisfy given goals or objectives based on a domain