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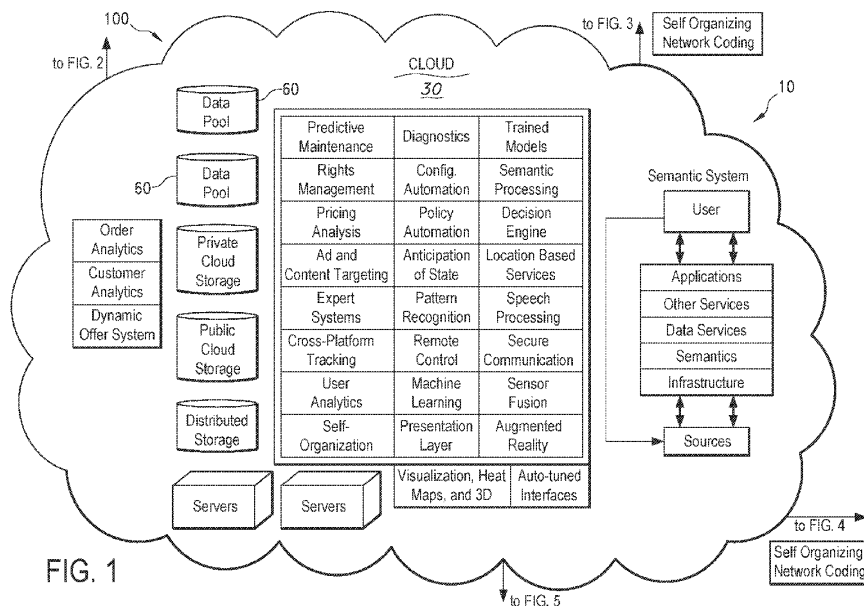
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(54) Title: QUANTUM, BIOLOGICAL, COMPUTER VISION, AND NEURAL NETWORK SYSTEMS FOR INDUSTRIAL INTERNET OF THINGS



(57) Abstract: Computer-implemented methods for fault diagnosis in an industrial environment generally includes processing the plurality of sensor data values to determine a recognized pattern therefrom; retrieving at least one industrial-environment digital twin corresponding to the industrial environment, the at least one industrial-environment digital twin comprising a plurality of component digital twins, with each of the plurality of component digital twins corresponding to one of the plurality of components in the industrial environment, and wherein the at least one industrial-environment digital twin and the plurality of component digital twins are visual digital twins that are configured to be rendered in a visual manner; and rendering the at least one industrial-environment digital twin and the at least one respective component digital twin corresponding to the particular component in the client application in response to the received request and based on the operational condition of the particular component.

[Continued on next page]

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