The Mind According to LIDA – Abstract

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How do minds work, human minds, animal minds, artificial minds? What are their underlying mechanisms? What would answers to such questions even look like? We claim it's best to look for them not in terms of neurons or cell assemblies, or in terms of algorithms, but in terms of systems-level cognitive models that attempt to account conceptually for everything mental that occurs between an incoming sensory stimulus and a resulting outgoing motor action. Our LIDA systems-level cognitive model, as yet partly computational, claims that all of our ongoing mental activity is composed of an overlapping sequence of extraordinarily rapid cognitive moments that we call cognitive cycles. Each such cognitive cycle, a mental building block, is exceeding complex in itself, consisting of multiple memory and executive systems, together with a swarm of processes acting upon each of them. External or internal stimuli are first interpreted so as to update LIDA's ongoing understanding of the current situation, not always an easy task. The most salient portions of this understanding come to consciousness to enable multiple learnings, along with the selection and execution of an appropriate mental or motor response completing the cycle. Higher level cognitive processes, reasoning, planning, imagining, etc. are accomplished by cascading these cognitive cycles. We claim that an appropriate fleshing out of this brief description can begin to answer the question "what are the mechanisms of minds?" But, what fleshing out?

This abstract is intended as an introduction, and an enticement, to a following two page executive summary of the mind according to LIDA. That summary is itself an introduction and enticement to a six page brief description of the LIDA conceptual model. Finally, a guide to the LIDA literature endeavors to lead the reader through articles and presentations that describe the latest intricacies of the LIDA model, its computational architecture, and its implemented LIDA-based software agents and robots.