

Diverse Intelligence: detecting, creating, and communicating with unconventional minds.

Abstract: Conventional views of intelligence, in evolutionary biology, synthetic bioengineering, and bio-inspired AI, tend to focus on brains. In this talk I will describe recent research in the field of diverse intelligence which identifies intelligence in novel substrates, projected into spaces we do not naturally perceive. Using embryonic morphogenesis as a model system, I will describe how endogenous bioelectricity functions as a kind of cognitive glue which binds intelligent components (cells) into higher-order agents which solve problems and exert creativity in anatomical morphospace. With respect to consciousness, I will argue that for the exact same reasons we attribute consciousness to brains, we should be open to it in many biological substructures. The inherent problem-solving competencies and plasticity of life enable an even wider space of possible bodies and minds, including cyborgs, hybridots, and chimeras. Finally, I will expand the space of cognitive kin even broader, dissolving the boundary between thoughts and thinkers, toward a notion of patterns as agents in their own right. These ideas have practical implications across regenerative medicine, synthetic bioengineering, and artificial intelligence.