The BIONIC Enterprise

Architected for Continuous Transformation

Envision | Transform | Thrive

Bionic Enterprise

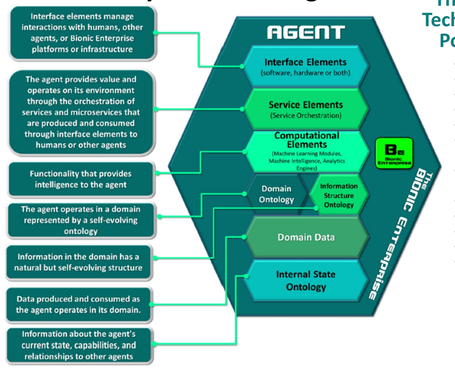
If machines and AI cannot empathize with humans, then how can they understand us and if they cannot understand us, how can they help and serve us?

Artificial Intelligence

- What are the learning methods that AI can use to acquire knowledge?
- How is that knowledge represented by the AI?
- What is the range of cognitive tasks that the AI can perform utilizing this knowledge?
- How can AI explain its recommendations and decisions to provide us with a level of confidence in its reasoning and its ability to avoid bias, misinformation, or incorrect assumptions?

A Bionic Enterprise is built on a Bionic Digital Platform Supports the Bionic Enterprise Brain Constructed of Bionic Agents. The AI will evolve to a point of Enterprise Singularity, then to the actual singularity and beyond to synthetic intelligence.

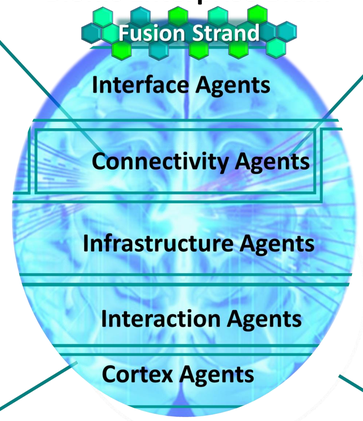
Anatomy of a Bionic Agent



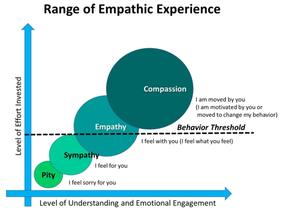
The Bionic Digital Platform is a Technology Convergence Platform Powered By Intelligent Agents

- Artificial Intelligence
- Robotics
- Ubiquitous Linked Sensors
- Virtual & Augmented Realities
- Additive Manufacturing
- Blockchain and Distributed Ledger & Distributed AI
- Advanced Materials & Nano Materials & Devices
- Biotechnologies
- Genomic Engineering
- Neurotechnology
- Space Technologies
- Human Bionic Engineering

Bionic Enterprise Brain



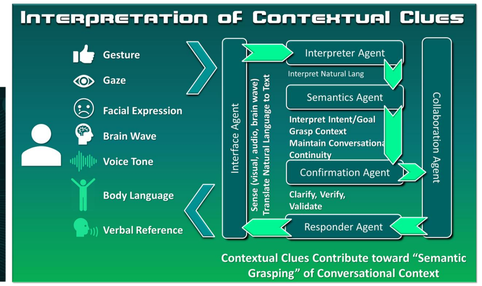
Empathy & Ethics in AI (*Avoiding Dark AI*)



Isaac Asimov's Three Laws of Robotics

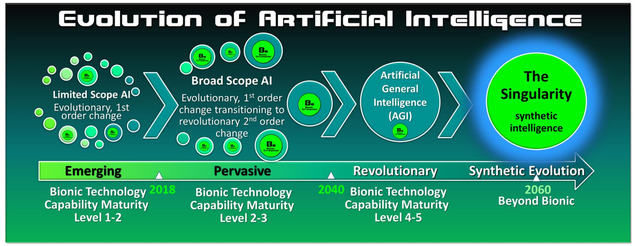
1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey any orders given to it by human beings, except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

A Dark AI will not concern itself with generating enough empathy to care for all humanity. It will not evolve to follow our ethics and morals. It will not share our aspirations for global peace and prosperity. It could well be the end of humanity.



Pathway to the Singularity

What does it me for a machine to become smarter than humans?



The Enterprise Singularity

EA Singularity Level 0 – the enterprise has only partial connectivity of devices, equipment, infrastructure and facilities and little or no ability to generate a real-time model of the enterprise IT infrastructure.

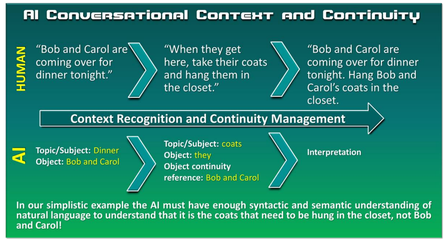
EA Singularity Level 1 – the enterprise has real-time awareness of devices, equipment, facilities, and interfaces connected to it and their configurations.

EA Singularity Level 2 – the enterprise connects digital models of all processes and activities to systems, devices, and interfaces for real-time monitoring of enterprise activity and performance of processes and services.

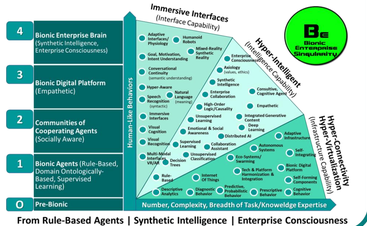
EA Singularity Level 3 – the enterprise can propose recommendations for improvements to physical configurations of equipment, networks, and IT infrastructure.

EA Singularity Level 4 – the enterprise can propose recommendations to processes, workflows, data flows, value streams, and services to improve performance.

From Rule-Based Agents > Synthetic Intelligence > Enterprise Consciousness



Achieving the Enterprise Singularity



Concrete Knowledge			Abstract Knowledge
Factual	**Conceptual**	**Procedural**	**Metacognitive**
• Knowledge of terminology • Knowledge of specific details and elements	• Knowledge of classifications and categories • Knowledge of principles and generalizations • Knowledge of theories, models, structures	• Knowledge of subject specific skills and algorithms • Knowledge of subject specific techniques and methods • Knowledge of criteria for determining when to use appropriate procedures	• Strategic knowledge • Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge • Self-knowledge

The future is about integrating intelligent AI-based technologies across domains and industries. It is about ubiquitous access. It is about learning to fuse bionic technologies to human activity, and it is about leveraging that fusion to reach increased human and machine potential through the user experience.

Bionic Brain Agent Structure