

Emerging Genuine Intelligence and Consciousness

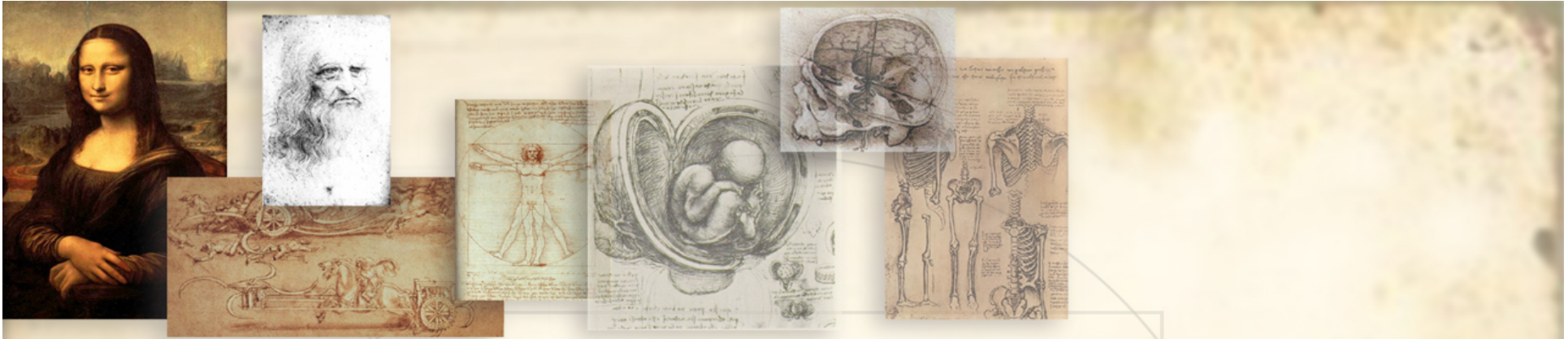
Superior Levels of Unreduced Interaction Complexity

→ **Intelligence** as a *high enough* level of *unreduced interaction complexity*:
chaotic, interaction-driven adaptability and self-development
Natural intelligence: electro-chemical interaction in a neural network

→ **Consciousness** as a next higher level of unreduced complexity:
complex-dynamic (multivalued) *bound states* (SOC)
Natural consciousness: SOC bound structures in the cortex

→ **Parallel superpower**: autonomous adaptability
logical, binding, supervising; separated self; multi-level;
control, imagination, anticipation (localised structures);
emotions, desires, "élan"; adaptable growth

→ **Artificial Intelligence and Machine Consciousness**:
modified but *unreduced* versions of natural properties
Properly designed structure/shape of AI and MC

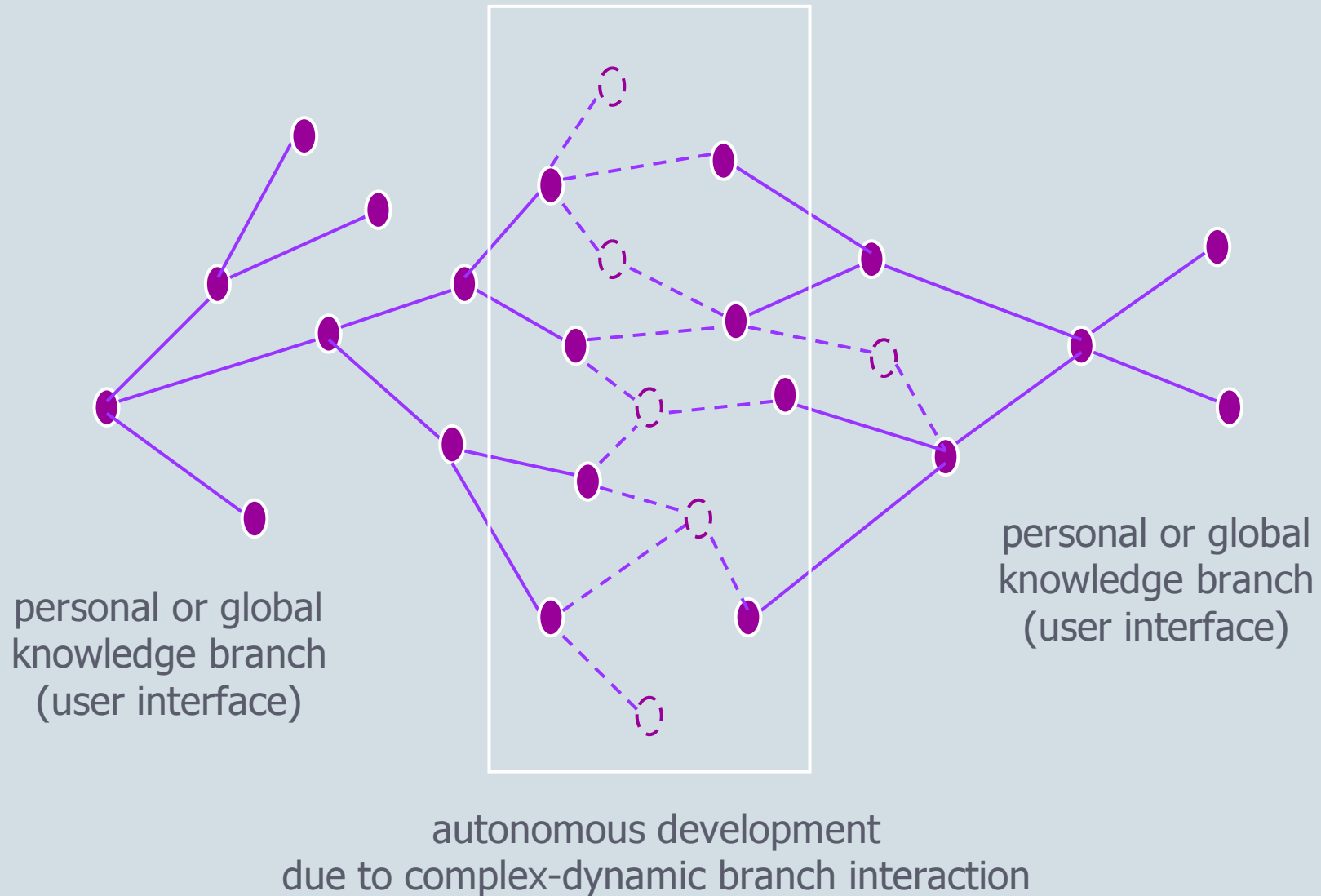


COMPLEXITY TRANSITION IN ICT SYSTEMS

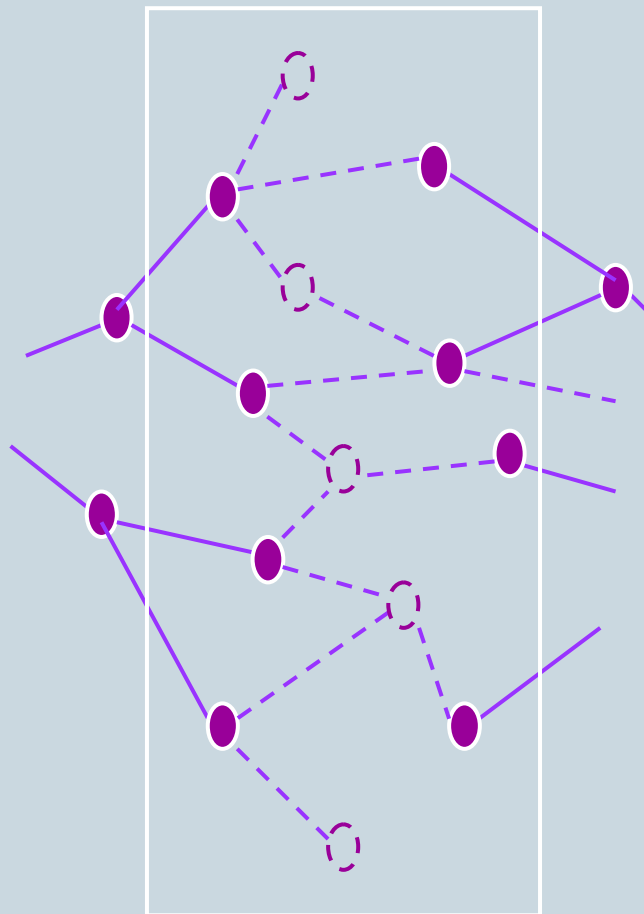
The New Era of Intelligent Information Systems

- (1) **Transition to useful dynamic complexity/chaos**
Priority R&D task and inevitable way of development
- (2) **Complexity levels of global communication system**
 - Quasi-regular P2P network (modern internet, phone)
 - Complex-dynamic P2P network (liberated internet)
 - Context-based network: “human” complexity levels
- (3) **Intelligent and conscious information systems**
Unified, fractal “quantum beat” (physics/0409140)
Unlimited coevolution of system and user complexity

Knowledge-Based Structure of Intelligent Communication Networks



Knowledge-Based Structure of Intelligent Communication Networks



branch interaction process

Principles of complex network realisation

(1) Available "interaction space"

(2) Self-amplifying (chaotic) interaction rule

(3) Based on the unreduced complexity and
"complexity correspondence principle"



Universal criterion of intelligent operation