

1. Tipalo GmbH

Preamble

There is no explanation how biological neural nets are creating and developing higher forms of organization. We urgently need to find out the logic of biological functions in the brain and use it in digital AI products and services. First understand the basic principles, then develop a viable theory about general intelligence, at the end create a new technology, from inception to production. Intelligence becomes portable in both ways, from human to AI and back. This way we could easily understand, explain, accept and use AI in our life.

Description

Tipalo is an AI startup developing software technology with biological features:

PNN - Programmable Neural Nets

SPL - Self-Programming Logic

SLM - Self-Learning Mechanism

ANS - Artificial Nervous System

AI product

General-purpose AI as digital bio-brain

Autonomous exploration of the surrounding environment

Knowledge accumulation via own experience

Living machine as embedded system with body and self-learning brain

AI product lines

- 1. robodog**, for intruder detection and landscape exploring + surveillance
- 2. drone**, for autonomous delivery and landscape exploring + surveillance

2. Tipalo AI approach

Multiple domain sources

| | | |
|-------------------|------------------------------|----------------------------------------------------------------------|
| Science | Scientific approach | physics, chemistry, cytology, genetics, biology |
| Species | Brain templates | histology, embryology, anatomy, physiology, neurology |
| Thinking | Tipalo AI concept | logic, philosophy, linguistics, pedagogy, ethics |
| Technology | Tipalo implementation | semiconductors, hardware, software, programming languages, databases |

Procedural method

PNN - Programmable Neural Net is an own type of neural nets, organized in groups, allowing new ties between cells

SPL - Self-Programming Logic enables the individual neural nets to adapt to new situations

SLM - Self-Learning Mechanism, provides the accumulation and retrieval of knowledge in neural nets

ANS - Artificial Nervous System, offers the logic framework needed to perform neural nets for specific purposes

Technology

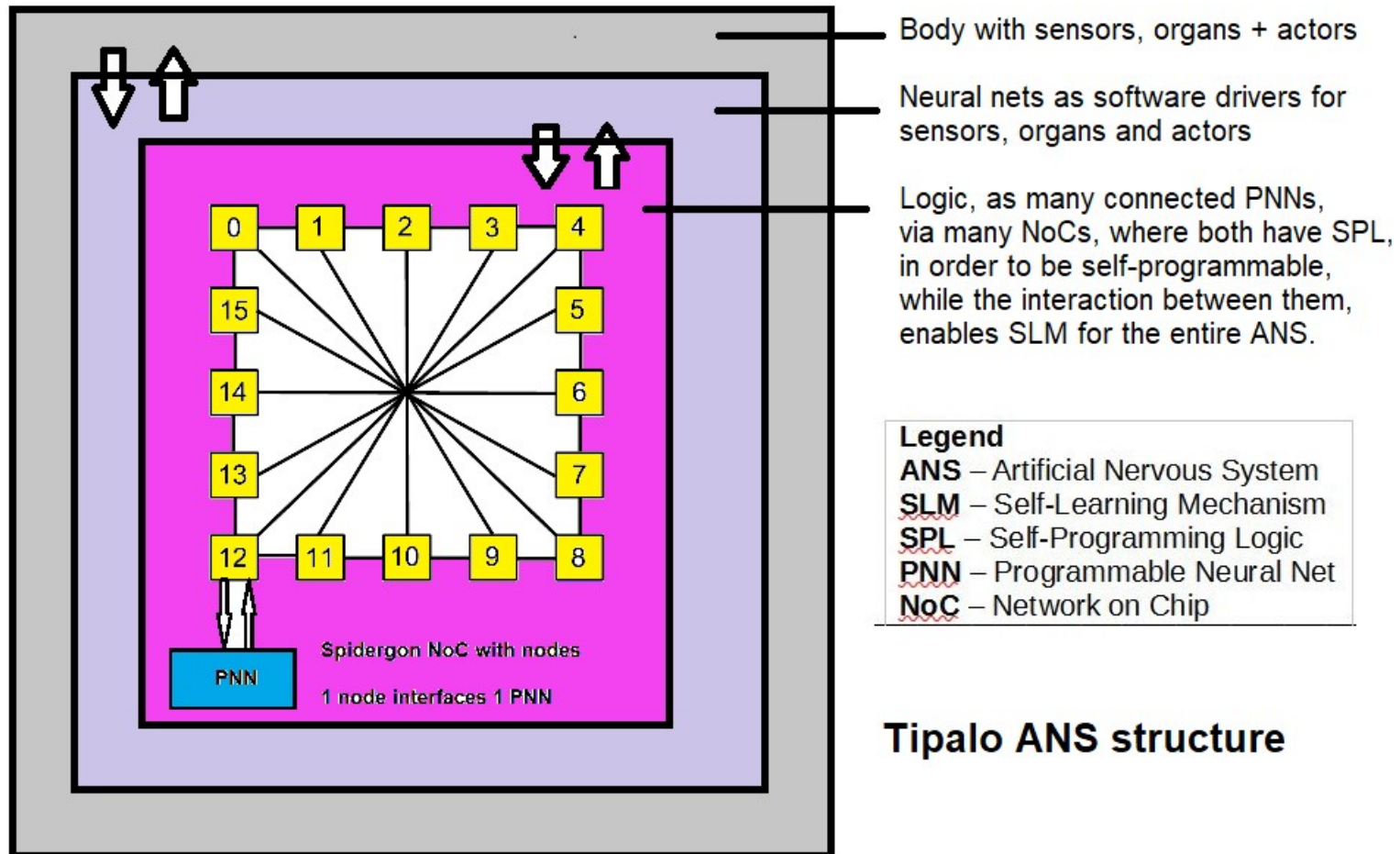
The VHDL real-time operating system simulates a time flow, where all active cells are processed within 1 ms.

The generic ANS is the logic framework, which describes all specific neural nets needed for a specific body hardware.

The corresponding body contains the connected sensors, actors and organs of the embedded system.

The dedicated ANS of a product line has a certain level of intelligence, equipped with pre-defined knowledge.

3. Tipalo ANS



| Level | Levels of intelligence | | | |
|-------|------------------------|---------------------|------------------|---------------------|
| | biological equivalent | AI product lines | capacity (cells) | density (ties/cell) |
| L1 | insects | robodogs, drones | 1M | 16 |
| L2 | mammals/fishes/birds | pilots for vehicles | 1G | 256 |
| L3 | primates | robotic workers | 10G | 1024 |