



Advances in AI and Natural Neural Intelligence Using Live Neural IT Devices

BCM Industries Inc.

“...an emerging leader in Live Neural IT Devices and Natural Neural Intelligence ”

January 2023

Digital AI or artificial general intelligence (AGI) programs are beginning to penetrate all economic sectors, offering automation efficiencies, and eliminating error-prone, human-mediated processes. Prominent examples include:

Machine Learning (ML) Systems, (Deep) Neural Networks, Natural Language Processing (NLP), Computer Vision Systems (CVS), Cognitive Search Systems, and many more.

Most major tech companies, including Microsoft, Apple, IBM, Intel, Google, Facebook, Twitter, Oracle, and others are now moving their digital AI and AGI platforms to commercial applications. These efforts will quickly revolutionize many industries including Internet-based services such as chat, learning, searching, texting, emailing, and more.

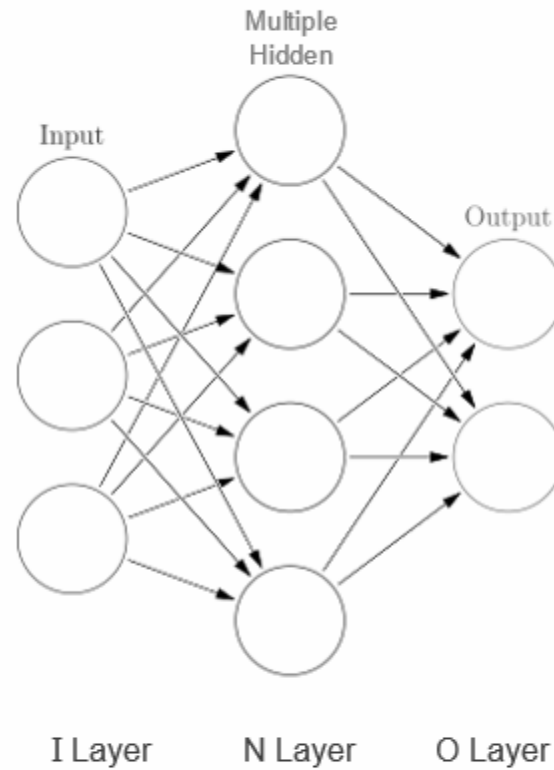
Neuralink, (Elon Musk), Blackrock Neurotech, Synchron, BCM, and others are successfully linking digital computers to addressable live neurons. Live neurons are trainable and manageable and offer users amazing processing speeds and direct access to natural neural intelligence (NNI).

Thousands of organizations are now pursuing AI and AGI platforms including OpenAI-provided GPT-3 (Generative Pre-trained Transformer 3). By early 2021 over 300 applications were delivering GPT-3–powered search, conversation, text completion, and other advanced AI features through OpenAI APIs.

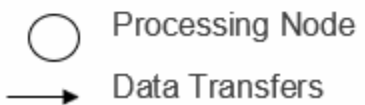
One AGI service is ChatGPT, a fine-tuned form of GPT-3.5, capable of engaging in human-like conversations on a wide range of topics. It uses 175 billion parameters to create each AI solution.

Soon Computer Science education and most digital software will be replaced by controlled layered AI processing solutions that are trained rather than programmed. The bulk of the intellectual efforts to acquire a digital machine to perform processing tasks will be in selecting the best examples, the correct training data, and establishing an effective means to evaluate the training process.

Deep Learning Network (AI) Structure - Example Controlled Layered Processing



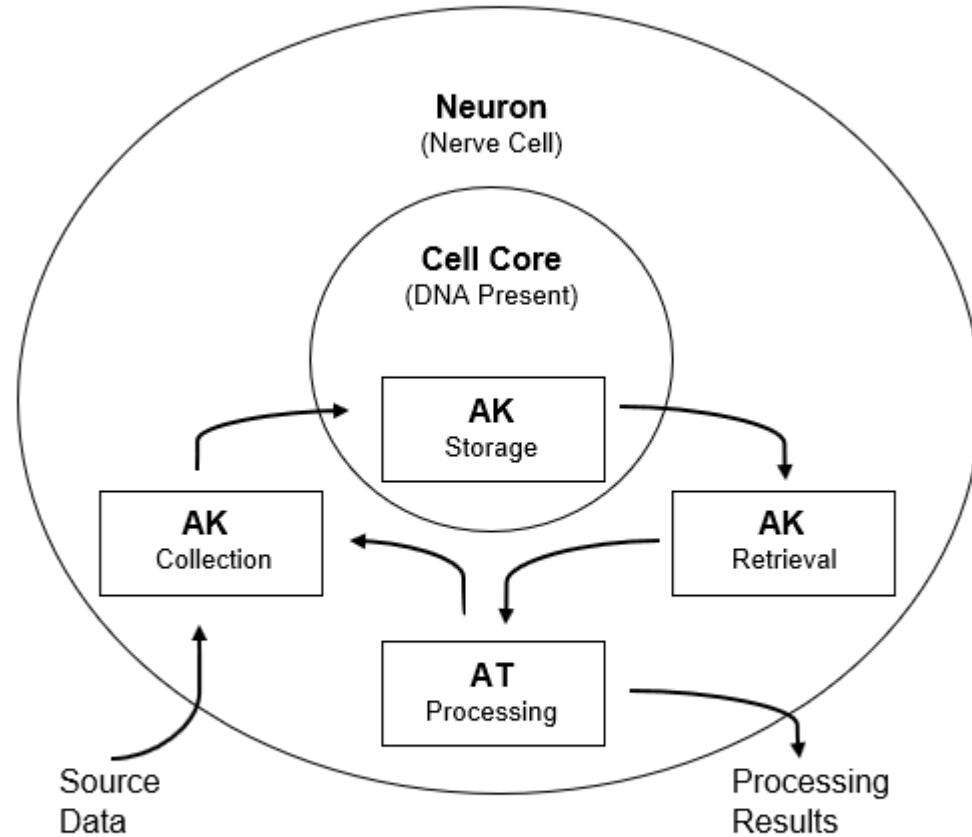
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Currently, in R&D the forthcoming BCM Industries (BCM) developed Live Neural IT devices offer users direct digital access to millions of DNA customized, trainable, addressable, and digitally manageable live neurons..

Known as Tissue Operating Devices (TOD™), these intelligent devices include modified, non-human, animal neurons with customized DNA powers that collect and accumulate knowledge (AK), perform application-tailored adaptive thinking (AT), and deliver individual neuron addressable and directable massive real-time Natural Neural Intelligence (NNI) capabilities.

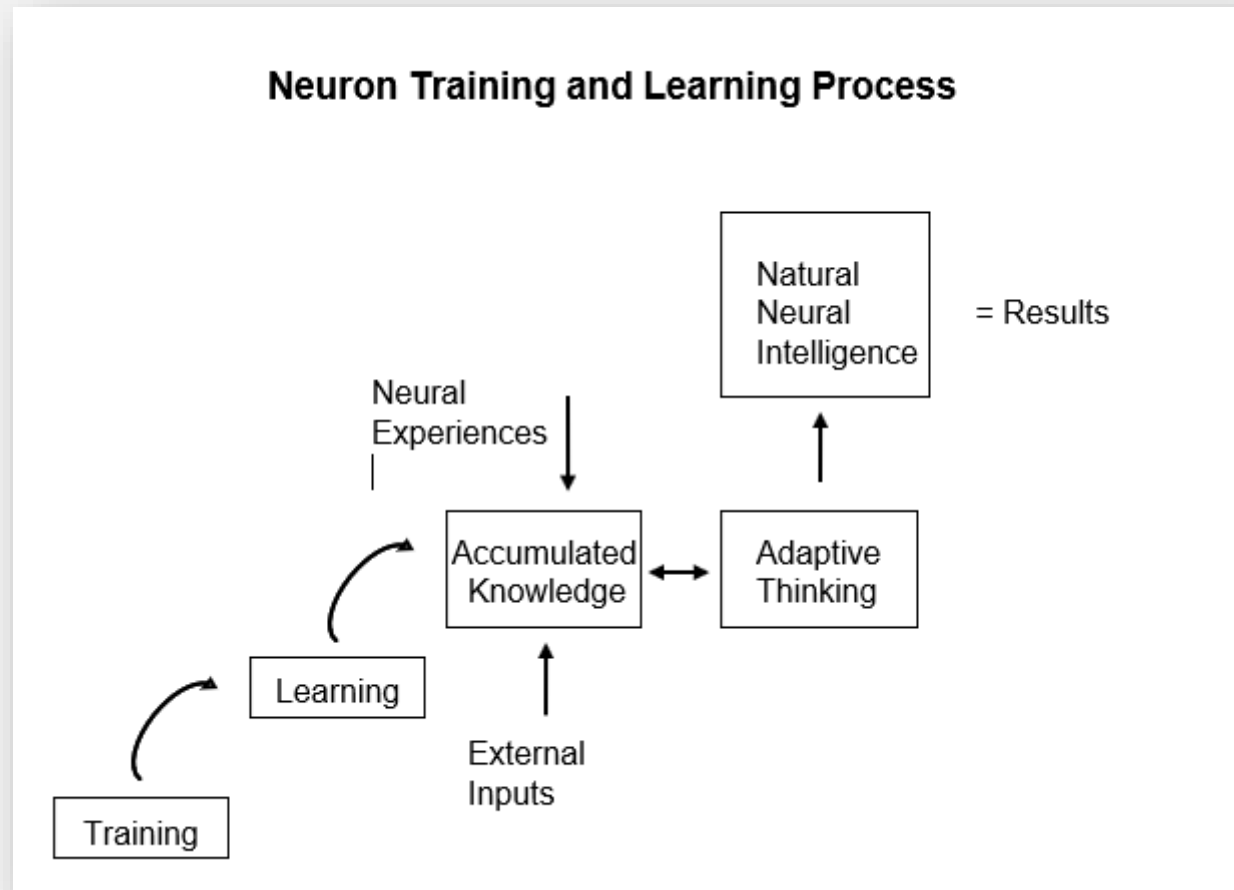
Sourcing, Storing and Retrieving Neural Accumulated Knowledge



Code:
AK – Accumulated Knowledge
AT – Adaptive Thinking
DNA - Deoxyribonucleic Acid

Live neurons learn and gain AK from source data plus through data-sharing and performing tasks.

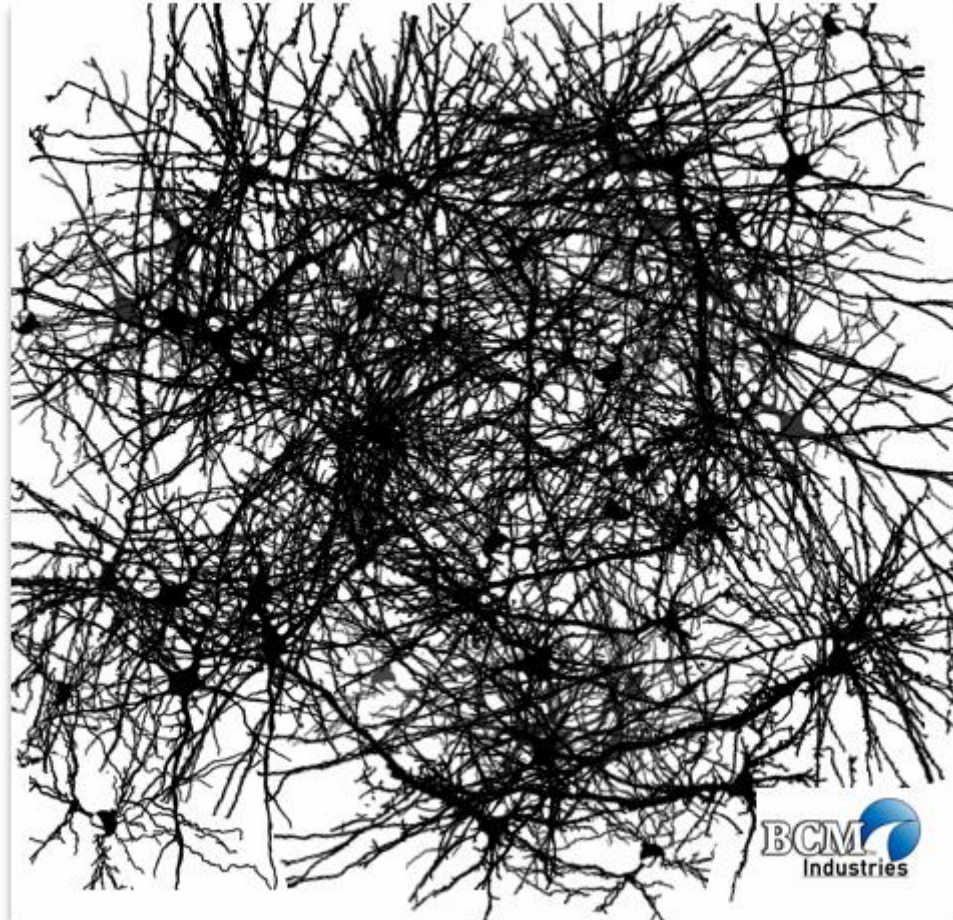
- ✓ Learning sources include external inputs and DNA-shared internal neural network data
- ✓ External Training Example – training a puppy to sit, stay, or fetch
- ✓ Internal DNA Example – A cat knows to use a cat box commonly without training



NNI is based on natural live cell DNA data storage, processing, and intelligence. All neural data is parallel processed. This includes both AK and AT actions and NNI data that are simultaneously shared across millions of live nerve cells (neurons) within a living neural network.

NNI exists and naturally occurs in all live neurons. The intelligence collection and delivery process is a physical 3D, unlayered, open-spaced, dynamically adaptive, live neural network. Live NNI networks are adaptive and operate at intelligence magnitudes far above those delivered by any digitally performed AI algorithm or analysis process.

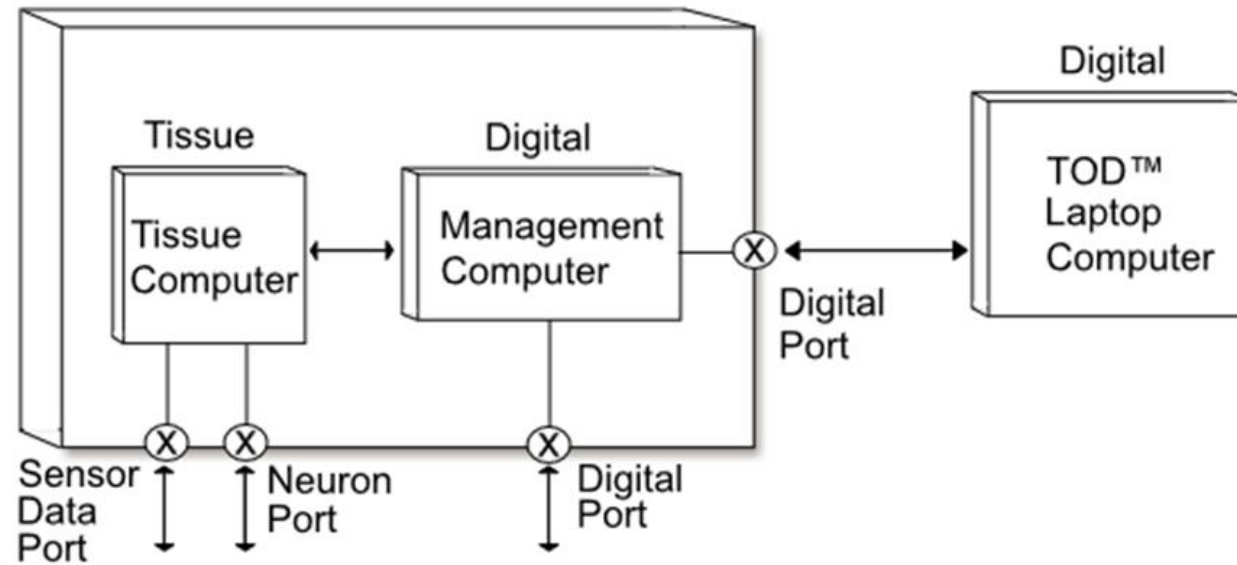
Live Neural Network (NNI) Structure Example
Nature Controlled NNI Processing



TOD™, with DNA Memory Stations, plus Neuroware and supportive neuron training, and application software, are the newest advancements to Live Neuron IT devices.

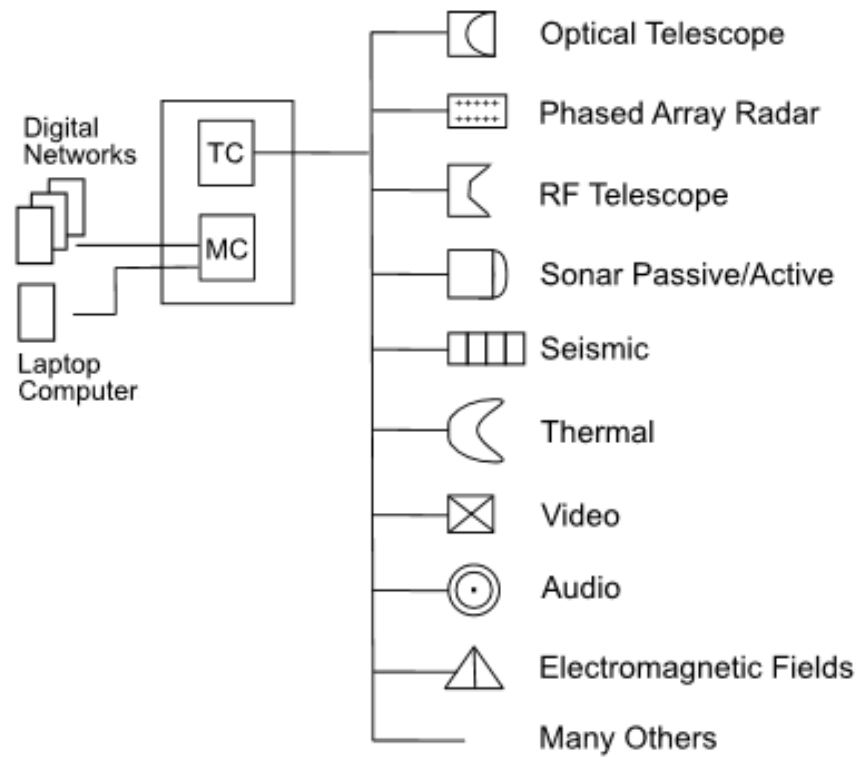
The direct interface of live neurons with conventional digital computers was established in 2000 and has continued to mature. A TOD™ system configuration uses both digital and tissue computers to deliver maximum digitally manageable processing services.

TOD™ System Configuration



BCM sensor neuron customized TOD™ - DSP system configurations can support many types of raw data direct signal processing (DSP) applications. Receiving raw analog data and directly processing the data without A-to-D data conversion can result in superior accuracy and speed enhancements to most sensor-based data collection and processing applications.

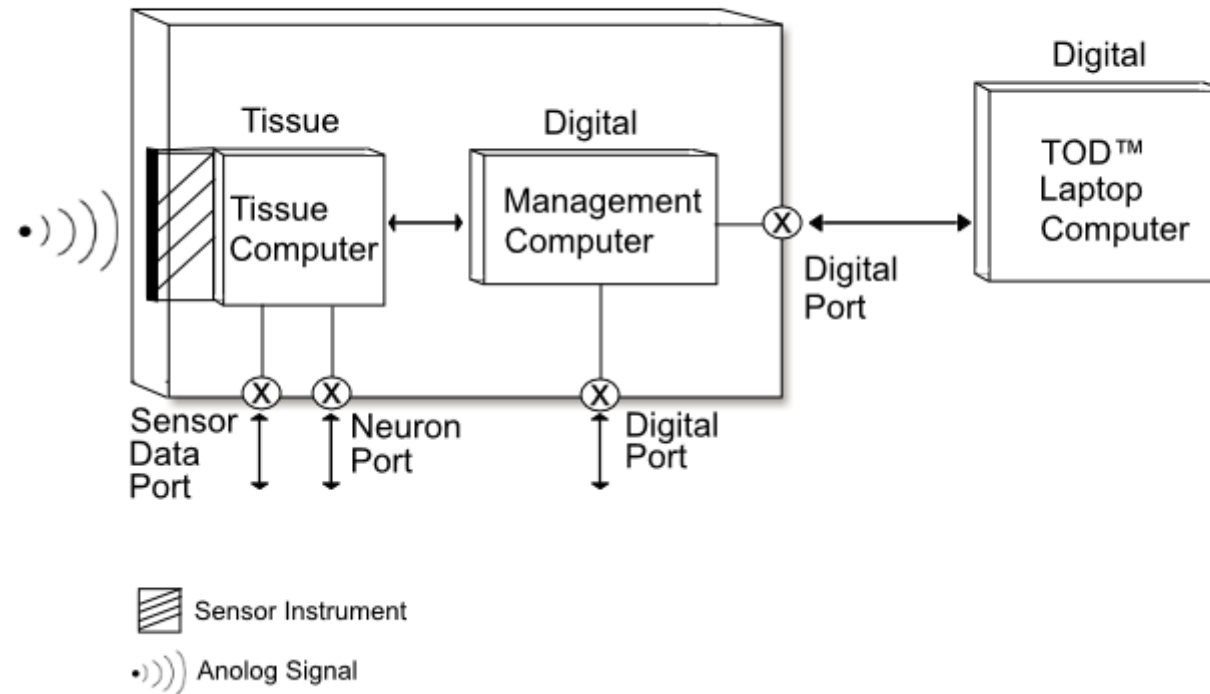
TOD™ Raw Data Direct Signal Processing



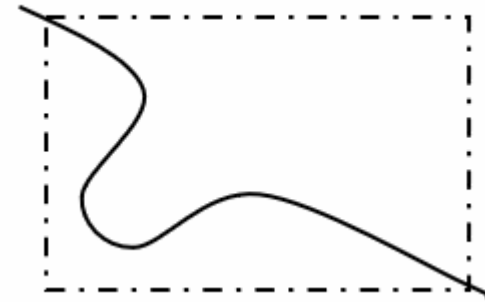
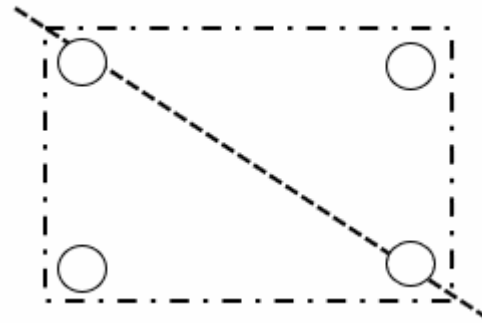
TC - Tissue Computer
MC - Management Computer

BCM is commencing the design of sensor application customized TOD™ - DSP system configurations to support many raw data direct signal processing (DSP) applications. These DSP designs use various types and combinations of modified, non-human, live animal sensor neurons to achieve maximum application-specific processing performance. DSP units avoid the digital sampling errors introduced during A-to-D data conversion. This approach assures improved accuracy and increased processing speeds.

TOD™ - DSP System Configuration



Using TOD™ - DSP the need for A-to-D conversion of raw sensor data is eliminated. With direct sensor signal processing, analog-to-digital conversion errors are eliminated. Without A-to-D conversions, BCM-offered Live Neural IT devices provide greatly increased processing accuracy and speed for many types of analog signal processing applications. See sample illustrations.



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Digital Data Collection Point



Digital Estimate of Data Path

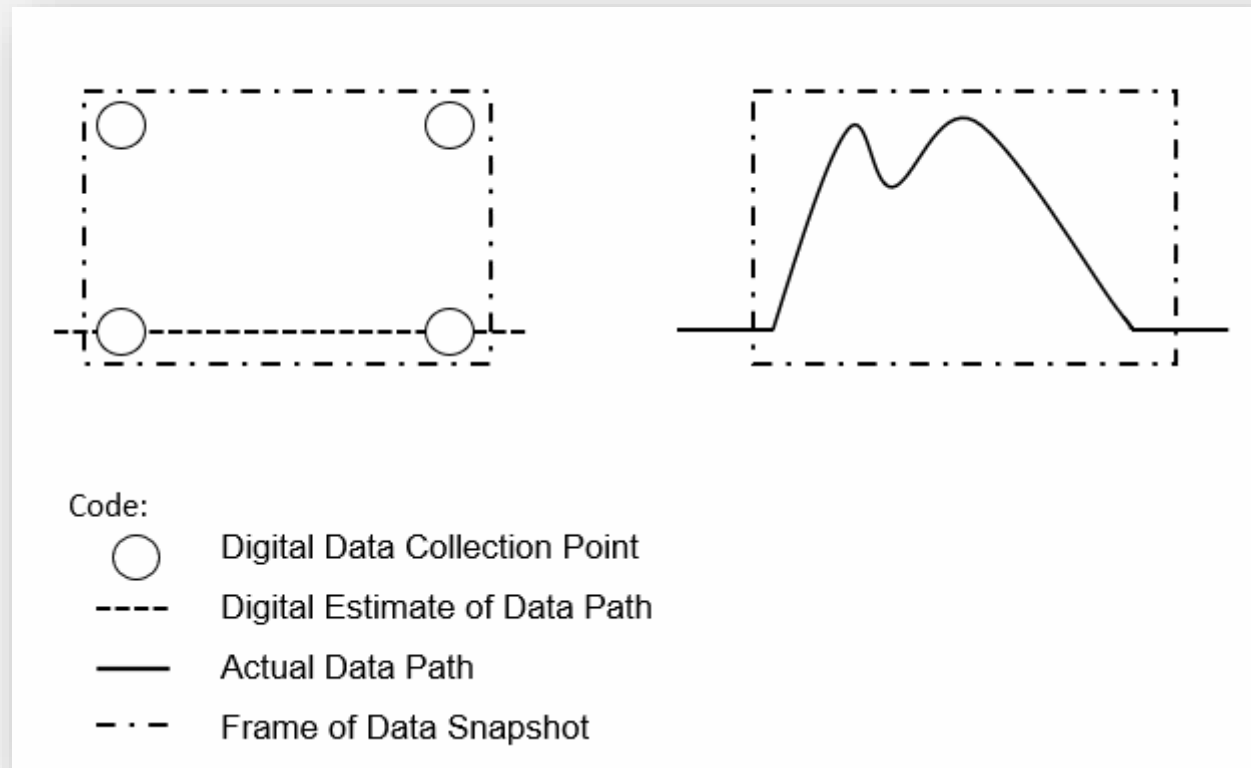


Actual Data Path



Frame of Data Snapshot

Digital Conversion Data Errors – Double Spike



Live Neural IT devices can increase sensor detection accuracy, expand the distance for detection, improve the speed of detection processing, and provide massively parallel signal processing and immense real-time cell-DNA data storage capacities. They add powerful NNI capabilities to the detection, analysis, and processing of results.

Following are a few of the many applications that can be addressed with TOD™ - DSP special signal processing systems.

Exoplanet Discovery – increase the rate and capability to discover Exoplanets, including adding immense DNA cell-based data storage and retrieval, and massively parallel data analysis.

Deep Space Exploration – add improved detection resolution and NNI capabilities, to detect and analyze, black holes, solar winds, supernovas, plus other space phenomenon.

Manned Space Operations – reduce mission risks, and operational errors, and improve flight safety systems performance.

Defense Shield Systems – provide processing speed, accuracy, and throughput capacity required to address new high velocity, up to Mach 50 threats, and saturation attacks.

Kinetic Intercept Impact Trajectories – improve the real-time accuracy and speed of computing the trajectories and adjustments for kinetic impact points on inbound Mach 1 to Mach 50 threats.

Battlespace Management – expand and enhance the detection accuracy, speed, and coordinated saturation threat response capabilities of combined land, sea, air, and space defensive forces.

Microscopic Detections and Analysis – expand the obtainable resolution, quality, accuracy, and speed of acquiring and assembling microscopic data.

Medical and Disease Research – apply refined high-resolution sensor data with both NNI and programable Neuroware processing capabilities to detect and develop solutions to challenging healthcare issues including cancer.

Medical Devices and Systems – provide advancements in the resolution, accuracy, and performance of many types of medical devices.

Electromagnetic Field Based GPS – provides both Earth and planet-based locational positioning systems based upon detection and processing of the planet's electromagnetic field lines without the need for any satellites or other positioning system broadcasting devices.

RF and Radar Applications – provides enhanced accuracy and speed in both active and passive RF sensor detection, analysis, tracking, and communication services, for deep spaces and radar systems applications.

Thermal Detection and Eruption Predicting – provide the improved ability for extremely accurate, real-time thermal detection, monitoring, and research with the mission of establishing a real-time ability to accurately predict volcanic activity and eruptions.

Seismic Detection and Earthquake Predicting – using sensor-provided extremely small strength seismic activities, detect, process, and report on forthcoming earthquake activities, including potentially the timing, magnitude, and frequency of the initial event and aftershocks.

Subatomic Particle Research – provide atomic and subatomic research and application development community with the benefits of Live Neural IT devices. TOD™ is not a Quantum computer. However, it can provide enhanced processing for selective research and development applications.

Nuclear Power Systems - provide improved ability for extremely accurate, real-time thermal detection, monitoring, and control of nuclear power plants and systems.

Global and Space Weather Studies and Forecasting – using historical and continually collected real-time data, improve the accuracy and speed of real-time Earth and space location weather forecasts.

Forecasting Solar Flares and Radiation Conditions – improve the ability to accurately detect, validate and forecast solar flares, and other space-generated radiation conditions and threats.

Sonar Detection and Surveillance – significantly improve the real-time accuracy and speed of detection and analysis of both active and passive sonar sensors and systems in both defense and commercial applications.

Sonar Communications – research and develop improved knowledge and effectiveness in man's ability to intelligently communicate with sea animals.

BCM Labs continues to pursue the development of Live Neural IT devices, and pathways to monumental advancements in applicable live neural produced Intelligence, enormous neural network-based DNA data storage, application-focused, live-cell participation in real-time parallel neural processing, and sponsored-based support to OpenNNI and Neuroware application development communities.

Research facilities, universities, governments, businesses, and individuals with potential applications or a desire to participate in these activities are encouraged to contact a BCM representative.