Systems and Methods for Identifying Anomalous Nuclear Radioactive Sources

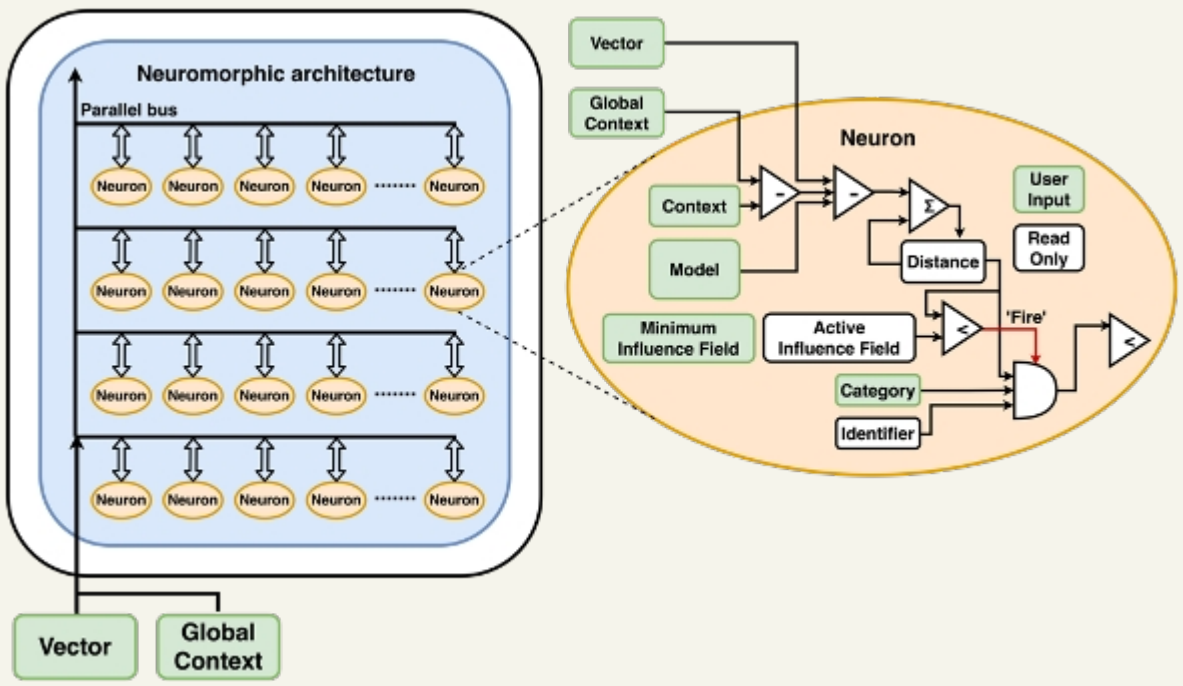
Tech ID: 32781 / UC Case 2020-294-0

BACKGROUND

Real-time radiation monitoring is critical for public health and emergency response. High-frequency monitoring can generate large amounts of data for dozens of radioactive isotopes though. There is a growing demand for compact radiation detection devices that are also able to quickly and autonomously process these large datasets for anomalies. A UC Santa Cruz researcher has developed machine learning software that synthesizes real-time radiation monitoring data in situ to detect radioactive anomalies.

TECHNOLOGY DESCRIPTION

A UC Santa Cruz researcher has designed software that is used in line with a radiation detector to identify radioactive isotope anomalies. The software uses a field-programmable gate array-based neuromorphic architecture and a spiking neural network to synthesize and display real-time anomalies in radioactive isotope spectra data. This technology is compact, portable, and low-power, and can be used for unmanned and unmanned aerial monitoring.



APPLICATIONS

- Environmental monitoring
- Public health emergencies
- Radiation Monitoring and detection

ADVANTAGES

- Compact, portable, low power
- Autonomous processing
- Fast processing times

CONTACT

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INVENTORS

- Abbaszadeh, Shiva

OTHER INFORMATION

KEYWORDS

Radiation Detection, Machine Learning, Ambient Monitoring, Nuclear contamination, UAV, Drone

CATEGORIZED AS

- **Computer**
  - Other
- **Security and Defense**
  - Screening/Imaging
- **Sensors & Instrumentation**
  - Environmental Sensors

RELATED CASES

2020-294-0

▶ Low detection thresholds and data storage needs

INTELLECTUAL PROPERTY INFORMATION

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	WO 2022/094625	05/05/2022	2020-294

Additional Patent Pending

RELATED MATERIALS

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