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## Systems and Methods for Identifying Anomalous Nuclear Radioactive Sources

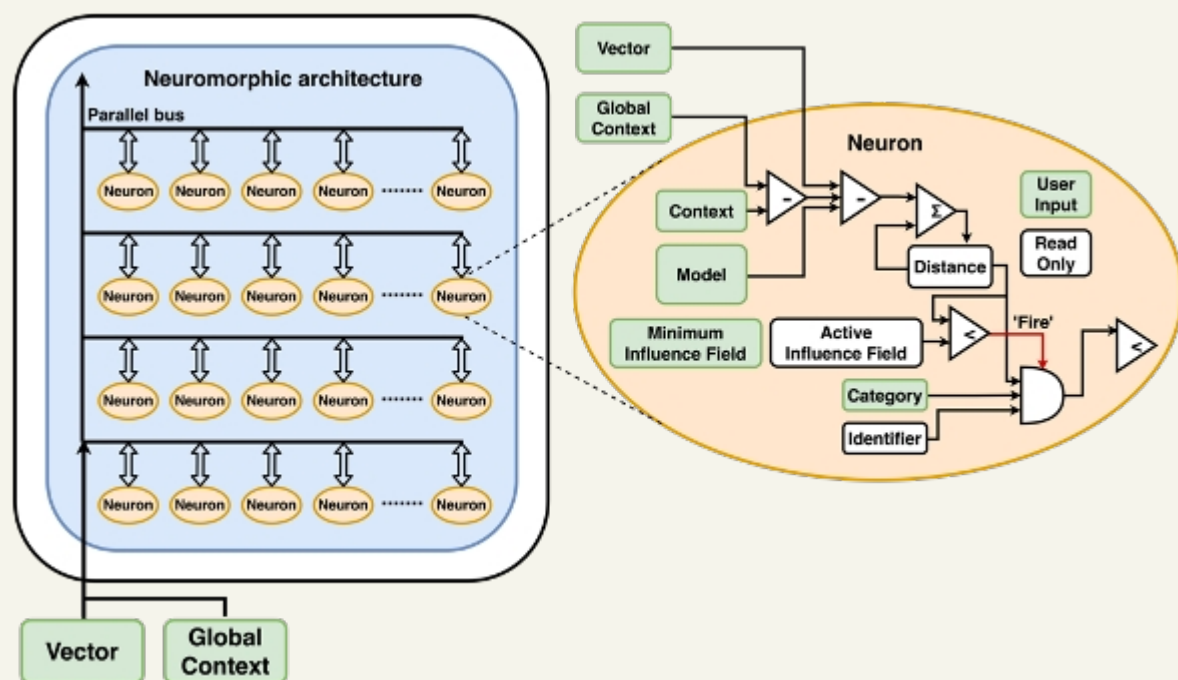
Tech ID: 32781 / UC Case 2020-294-0

### 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	<a href="#">WO 2022/094625</a>	05/05/2022	2020-294

Additional Patent Pending

## RELATED MATERIALS

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

► [Scalable, Multi-Energy Detection and Imaging](#)

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