Contribution ID: **88**   Type: **Short talk**

Waggle AI@Edge Computing: NSF Sage and Beyond.

Wednesday 22 March 2023 17:00 (10 minutes)

From the sensor to the laptop, from the telescope to the supercomputer, from the microscope to the database, scientific discovery is part of a connected digital continuum that is dynamic and fast. In this new digital continuum, Artificial intelligence (AI) is providing tremendous breakthroughs, making data analysis and automated responses possible across the digital continuum. Sage is a National Science Foundation funded project to build a national cyberinfrastructure for programmable edge computing, leveraging DOE funded Waggle AI@Edge platform. This new edge computing programming framework gives scientists a new tool for exploring the impacts of global urbanization, natural disasters such as flooding and wildfires, and climate change on natural ecosystems and city infrastructure. The Sage infrastructure allows scientists to write "software-defined sensors"by analyzing the data in situ, at the edge, at the highest resolution of data. Data from the edge computation are then transmitted to a cloud computing infrastructure where they can be archived and provided to the community as data products or used in real time to trigger computational models or dynamically modify subsequent edge computation. This new edge computing programming framework gives scientists a new tool for exploring the impacts of global urbanization, natural disasters such as flooding and wildfires, and climate change on natural ecosystems and city infrastructure. Sage is deploying cyberinfrastructure in environmental test-beds in California, Montana, Colorado, and Kansas, in the National Ecological Observatory Network, and in urban environments in Illinois and Texas. In this talk, beyond Sage and other DOE efforts that utilize Waggle, we will discuss our vision for edge computing from applications to capabilities, and outline the research and development challenges.

JLESC topic

Primary author: SANKARAN, Rajesh (Argonne National Laboratory)

Presenter: SANKARAN, Rajesh (Argonne National Laboratory)

Session Classification: Short Talks on AI/MD/DL

Track Classification: AI and ML/DL