DEBUGGING MACHINE LEARNING SYSTEMS

SOFTWARE
Software that enables analysis, debugging, and optimization of machine learning internal processes.

TECHNOLOGY TYPE
Data Infrastructure
Machine Learning

STAGE OF DEVELOPMENT
- Demonstrated functionality through a cusp-catastrophe time series simulator.
- Developing proof into simulation to optimize the tool.

IP PROTECTION
Provisional patent filed.

TECHNOLOGY SUMMARY
Developers are unable to debug, optimize, or even understand the processes that generate machine learning outputs due to the complexity of machine learning systems. This “black box” problem of machine learning poses significant limitations to widespread implementation of artificial intelligence.

A University of Utah researcher has developed software for “cracking open” the machine learning black box. This software integrates systems analysis with machine learning to force machine learning systems to express a linear dynamic systems equation. The linear equation is tested in conjunction with a machine learning technique that tests nonlinear relationships. The combination of these techniques enables mapping of machine learning internal processes over time.

FEATURES AND BENEFITS
- Identifies the internal processes of machine learning systems.
- Enables mapping of machine learning processes performed over time.
- Offers potential applications debugging other noisy, complex dynamic systems.

INVENTOR PROFILE
Jonathan E. Butner, Ph.D., Professor – Psychology Department

DATE UPDATED: 8/31/2018