simularity Real Time Distributed Artificial Intelligence

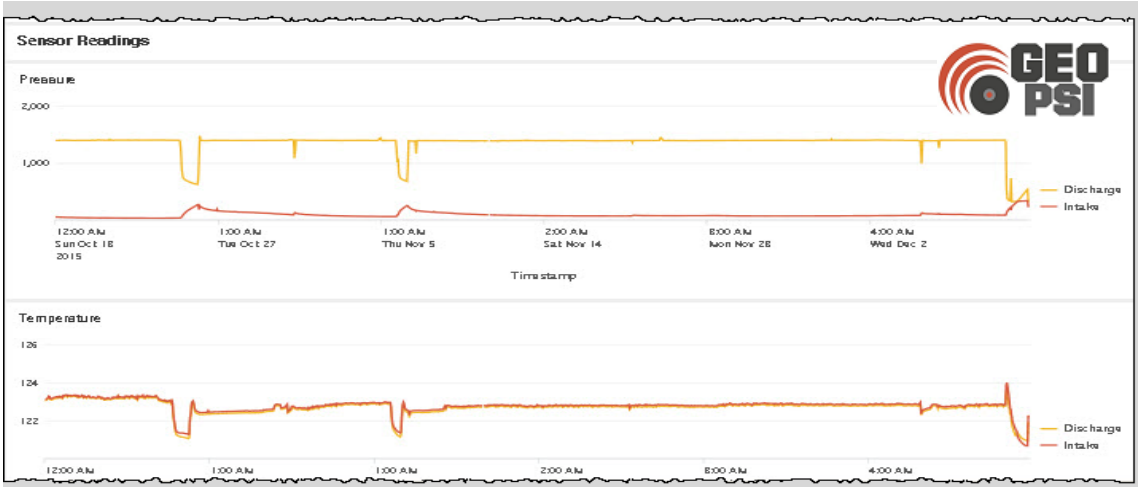
Industrial Strength AI-Based Failure Prediction, Anomaly Detection, And Predictive Maintenance For Oil And Gas Operators

Case Study:

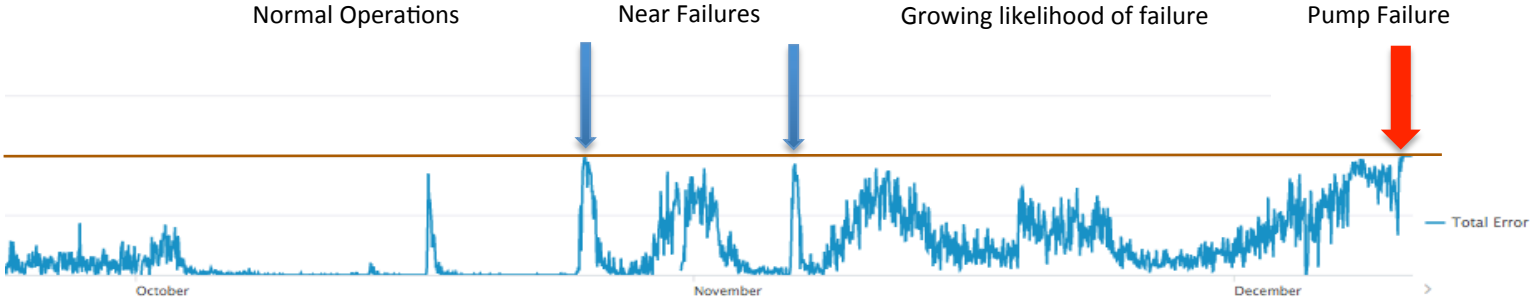
On December 9, 2015 a Progressive Cavity Pump (PCP) driven oil well in Oman suffered a break in the sucker rod string approximately 4700 feet below the surface. The unexpected shutdown required a completion workover service and replacement parts amounting to approximately $75,000.

The Solution:

Data: Earlier in the year, the well had been outfitted with an innovative permanent downhole gauge system created by **GeoPSI** which provides 12 different sensor measurements including: intake and discharge temperature and pressures, downhole speed, rotor position, twist, downhole vibration, and more.



Predictive Analysis: Simularity's AI created a failure signature that represented the condition of all the sensors prior to the failure, and then scored the historic sensor data against this failure signature. The result is the blue line below representing the failure score and giving more than one month's warning of the impending failure.



Had Simularity's AI been in place, monitoring the data from the well in real time, the artificial lift system could have lasted longer and repair turnaround could have been quicker.

- The downhole artificial lift system could have been programmed to operate differently to avoid stressful situations that can lead to cause sucker rod string failure.
- The meantime between failure could have been extended improving the operating expenditure of the Oman production field.
- Artificial lift repair and workover costs could have been planned more effectively to reduce lost production.
- Reduced employee and management stress and lower chance of on-site mistakes, and increased safety

View Demos: YouTube www.youtube.com/c/simularity

simularity Real Time Distributed Artificial Intelligence

What Makes Simularity Different?

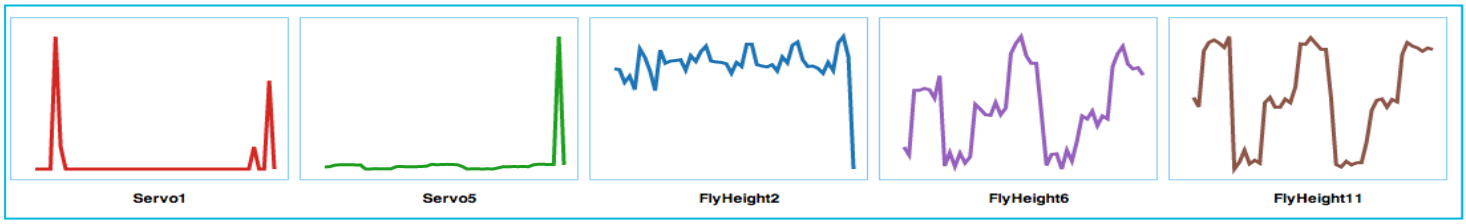
No Experts

More Accurate

10x faster to deploy

Integrates with existing systems

Learns on Microcontrollers



Event signatures: multivariate time series patterns that represent the signals and elements that are predictive of events, are 50% more accurate than machine learning algorithms, can be annotated, and are explainable.

Intelligent Agents: Distributed, cooperating reasoning software modules that run on small, inexpensive microcontrollers (as well as larger computers).

Scalability: The Simularity AI can easily scale to hundreds of billions of multi-core computers.

Our Partners

CISCO

accenture

intel

Intel® Internet of Things Solutions Alliance

DELL

IoT Solutions Partner

Bright Wolf

freescale Connect

GEO PSI

B+B SMARTWORX ENABLING CONNECTED INTELLIGENCE

Simularity AI Features:

- Anomaly Detection
- Failure Prevention
- Risk Management
- Pipeline Monitoring
- Asset Management
- Increase Pump Efficiency
- Edge Analytics
- On-pump Analysis
- Minimal Connectivity Required

Data The System Can Use:

- Downhole Sensor Data
- SCADA Sensor Data
- Wellhead Sensor Data
- Pipeline Sensor Data
- Repair History
- Well Production History

Simularity has developed innovative software that can analyze large volumes of time-series data in real time at the edges of the network. By capturing real time data from multiple sources, the artificial intelligence software can 'learn' what's normal and predict incidents **before they happen**, including "time to failure" estimates and explanations for its conclusions.

For a free consultation, email info@simularity.com

Simularity, Inc. 1160 Brickyard Cove Road, Suite 200 Point Richmond, California, USA
Silicon Valley Area www.simularity.com @simularity

simularity