BLUMIND

AI for Everyone, Everywhere

Application Brief

AI Time Series Data Analysis

Always-on Time Series Data AI Analysis

Using time series data from audio, vibration, or accelerometer sensors for determining preventative maintenance or impending failure of a system is a well understood principle. However, implementation with limited local power, remote or harsh environments, slow or poor connectivity and robust form factor requirements make adding AI to industrial applications a challenge. Yet adding real-time localized AI decision making can save significant unscheduled downtime and drive greater process efficiencies. For industrial edge AI, analog compute which draws inspiration from the evolution of brain power, is a compelling solution, providing ultra-low power, small physical form factor and real-time localized decision-making support via low latency inferencing. Blumind is the leader in all analog edge AI with its AMPL™ technology (see side bar).

Integrated solution

Blumind takes a holistic approach to achieve the highest total system value for clients. We consider the system level power, size, and cost targets to achieve the most efficient solution. For industrial time series data analysis our all-analog approach reduces system power to ~10% that of our nearest competitors (we can tap into industrial 4-20mA loop power networks) and support analog sensor inputs. Our end-to-end analog approach saves area, power, and cost at the *system level*, allowing clients to differentiate their products. All our products use standard PyTorch or TensorFlow software tool flows with a simple remapping of the results to our all-analog architecture. Contact us to find our more.

Blumind AMPL™ Technology

Blumind's AMPL technology is unique. The Blumind all-analog approach delivers the lowest power solution while the inherently parallel architecture delivers ultra-low latency for real time applications, all in a tiny footprint.

No high-speed clocks, ADCs, DACs, or specialty memory are used. AMPL technology is built in standard advance CMOS with a roadmap to leading edge process nodes.

By exploiting advanced CMOS device physics Blumind create single transistor neurons that are small and power efficient.

The AMPL architecture was built from the ground up to address analog compute challenges of variations in process, temperature, voltage, and long-term drift and our results are impressive.

Standard PyTorch and TensorFlow software tools are used to create the parameters for the powerful AMPL neural network.