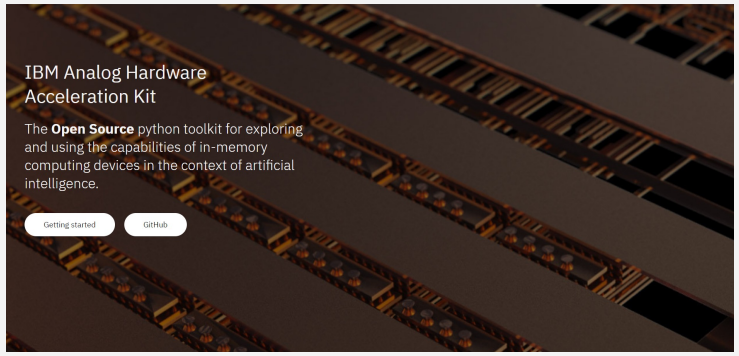
Analog AI Hardware Acceleration Toolkit

A first-of-a-kind, open-source toolkit to enable mastering and accelerating the analog In-Memory Computing (IMC) hardware technology to power more sustainable AI models.
https://github.com/IBM/aihwkit



Join us to build the future of accelerated and sustainable AI.

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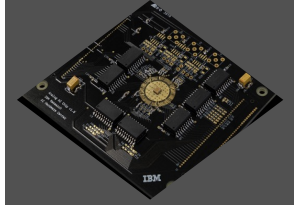
Current Capabilities Include:

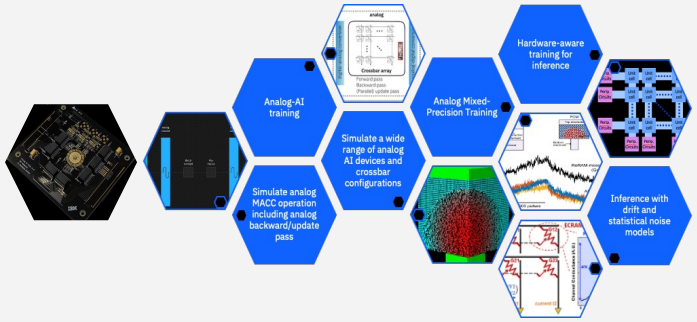
- Simulate analog MACC operation including analog backward/update pass
- Simulate a wide range of analog AI devices and crossbar configurations by using abstract functional models of material characteristics with adjustable parameters
- Abstract device (update) models
- Analog friendly learning rule
- Hardware-aware training for inference capability
- Inference capability with drift and statistical (programming) noise models



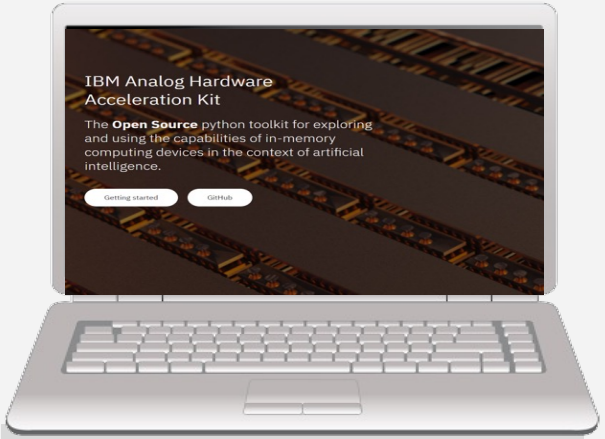
Roadmap:

- Integration of more simulator features in the PyTorch interface
- Tools to improve inference accuracy by converting pre-trained models with hardware-aware training
- Algorithmic tools to improve training accuracy
- Additional analog neural network layers
- Additional analog optimizers
- Custom network architectures and dataset/model zoos
- Integration with the cloud
- Hardware demonstrators

Analog AI Hardware Acceleration Open Ecosystem



A first of a kind, toolkit and cloud user experience enabling one to master and accelerate the analog hardware technology to power more sustainable AI models.
https://aihw-composer.draco.res.ibm.com/about



Open-Source Python AIHKIT GitHub Library

Target AI and hardware developers, ecosystem building. Analog AI training and Inference.

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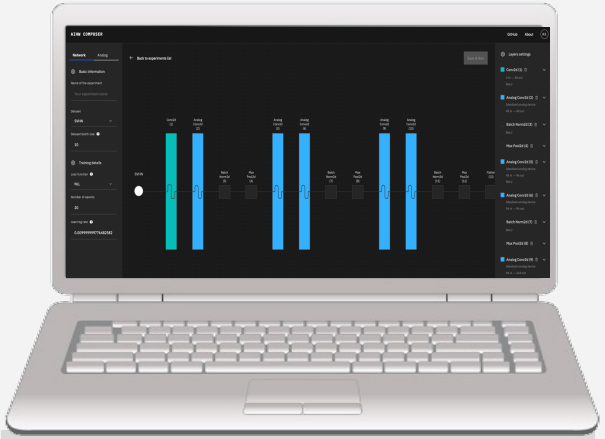

Interactive Cloud Composer

Analog AI as a service. No code experience. Explore training & Inference with analog and neural networks

https://aihw-composer.draco.res.ibm.com

Explore Emerging AI Applications on Next-Generation AI Hardware

Explore Generative AI Models, Mixture of Experts (MoE), Diffusion Models, Vision Transformers, Multi-modal Applications, and more on In-Memory Computing Hardware

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