Ai-MicroCloud™ for Healthcare

Hospital Admission Rate, Strategy Supplies Forecasting,

Arrhythmia Predictions, Brain Tumor Segmentation

Health care providers can leverage AI and advanced analytics to personalize health care, while improving overall population health one patient at a time. There are numerous use cases. Computer vision helps radiologists improve the speed and accuracy of cancer diagnostics. Predictive analytics helps patients get placed in the right care setting and get seen by the right clinical staff.

Zeblok's Ai-MicroCloud™

Zeblok's Ai-MicroCloud™ is the most straightforward way to efficiently pipeline data, including the critical data comprehension step, and then quickly & affordably to develop, train and deploy pragmatic AI into mission-critical enterprise processes. Data scientists can start an AI/ML model in minutes, leverage open-source frameworks, a growing library of curated algorithms and accelerated data handling technology, scale seamlessly to high-performance computing (HPC) and deploy completed APIs in production.

Zeblok's Ai-MicroCloud™ provides a uniquely comprehensive AI/ML development environment:

- Portability – Deployed to data centers, public clouds and Edge locations
- Instant Usability – Start in minutes via a simple UI, with familiar frameworks
- Seamless Scalability – One click to scale to HPC
- The Right Algorithms – Proven, curated, easy to consume and share

" **AI will become the new OS in HealthCare.** "

Accenture report

Build Domain-Specific Healthcare Applications

Ai-MicroCloud™ enables you to develop, deploy and manage bespoke real-time domain-specific AI applications in imaging, genomics, patient monitoring and drug discovery.

Ai-MicroCloud™ is a turnkey platform built on cloud native architecture for developers, data scientists, and researchers to create real-time, secure and scalable solutions. A simple user interface provides Jupyter notebooks, with access to all familiar open-source frameworks and popular data science language bindings such as R, Scala and Python.

Use Cases

Time Series Data Analytics

- **Hospital Admissions Rate:** Hospitals need to organize and optimize their supply chains and staffing based on admission rates of patients. They need to capture fluctuations based on factors like weather, calendar and time of day, disease spread and epidemiological evolutions.

- **Strategic Supplies Forecasting:** Adaptive forecasting models that capture new dynamics fast and give insights into underlying demand influencers. Consumption of medical supplies and scarce raw materials. Normal fluctuations in consumption patterns complemented by structural changes due to extreme events, climate changes, epidemiological changes.

Edge Video Analytics

Arrhythmia Prediction: Keras model used to detect arrhythmias in ECG time series data

Pneumonia Detection: Application showcases classifying the probability of Pneumonia in X-Ray images

Brain Tumor Segmentation: U-Net architecture used to segment brain tumors from raw MRI scans.

Robotic Instrument Segmentation: Semantic segmentation to identify the segments of robotic instruments within a video frame

Platform Features Overview

AI Platform-as-a-Service delivered as Ai-MicroCloud™, including **Turnkey HPC Orchestration** and an **Intelligence Marketplace** for curated algorithms

- **Ai-WorkStation:** Customized and virtualized Jupyter notebook, with access to all familiar open-source frameworks, accelerated data lake and AI algorithms via a simple web interface

- **Ai-HPC-WorkStation:** Turnkey workload distribution to hundreds of GPUs for AI/ML model development, training and simulations

- **Accelerated Data Lake:** Enables a 10-15x reduction in search time

- **Intelligence Marketplace:** Growing library of carefully curated original AI algorithms, including exclusively in-licensed patent-pending software

  Easy to read, easy to use and easy to share

  Fast-track adoption of the best AI algorithms from academia and AI startups

- **Cloud Native:** Scalable architecture running in modern, dynamic environments using containers and declarative APIs

- **Ai-Rover™:** Analytics and data visualization notebook – domain-agnostic data discovery tool for large, multi-variate, high dimensional data analysis, using patent-pending explainable AI algorithm, exclusive to Zeblok

  Provides crucial data comprehension step as starting point for AI model development – patterns, correlations and causation

- **Ai-Rover™ for Time Series Data:** Automated predictive model-building that creates human readable explainable forecasts and anomaly detection models from historical time-series data.

- **Runtime Environment:** Finished model pipeline easily promoted to a runtime API, including inferences running at the Edge

- **Multi-Cloud from Core to Edge:** Deploy Ai-MicroCloud™ anywhere, including enterprise data centers, public clouds and Edge locations

Partner Programs

- **Frontier:** CSPs and MSPs upsell Ai-MicroCloud™ to remain competitive; Specialized hardware manufacturers use Zeblok's orchestration to enable AI workloads on their hardware

- **Ingenuity:** Algorithm originators are able to develop their software more easily on our Ai-MicroCloud™ and we facilitate commercialization by including their algorithms in our Intelligence Marketplace

- **Insight:** Data providers benefit from our accelerated search capabilities

- **Build Intelligence Services:** Broad network of AI solutions firms help integrate AI into enterprises' mission-critical process

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