AIVM - The Artificial Intelligence Virtual Machine

We introduce the AIVM, a pioneering new system architecture that is the new standard for blockchain-powered artificial intelligence. AIVM stands for the Artificial Intelligence Virtual Machine, the first uniform execution environment connecting on-chain assets with off-chain activity to achieve trustless, large AI model inference.

The AIVM ensures uniform execution across all nodes in the NES network, analogous to the role played by the Ethereum Virtual Machine (EVM) in the Ethereum ecosystem. This standardized design across all system requests regardless of origin, function, and purpose solves the major industry problem of discrepancy in model execution that can prevent consensus on AI inference results.

At its foundation, the AIVM is designed to streamline the AI computation process by providing a consistent set of rules and execution protocols, which every participating node must follow. This not only guarantees that all nodes produce identical results given the same model parameters and input data, but also relieves node operators from the intricacies involved in setting up execution environments, facilitating easier adoption and participation in our network.

The AIVM framework offers the flexibility to accommodate a wide range of AI models. By incorporating AIVM instances with model parameters on the blockchain, we create an on-chain repository of AI models that can be accessed and utilized by users for various inference tasks.

This chapter will detail the architecture of the AIVM, its role in our decentralized inference system, and the mechanisms through which users and developers can interact with it to deploy and execute AI models. Before diving into the details of the AIVM, we first present a general architecture of the whole NES system in Figure 2.1, where the AIVM serves as a critical component.

PAGE
AIVM Architecture and Design

PAGE
Model Consistency and Inference Reliability

PAGE
On-Chain Model and AIVM Repository

PAGE
AIVM Interface for Model Interaction

Previous
Introduction to Nesa

Next
AIVM Architecture and Design

Last updated 1 month ago