Project Ahab

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1. Introduction

Project Ahab is a project designed to create a new hardware and software system to create a highly adaptive, highly scalable, and energy efficient computing system to allow for the development of AGI. It accomplishes this by utilizing two new technologies. The pourable computing architecture and the EAST (Evolutionary Algorithm Storage and Training) system. These two technologies working synchronously creates a computer system that is able to indefinitely scale upwards and fully optimize itself, allowing users and developers to fully utilize the computer in its entirety. Allowing for more efficiency in software and hardware technology with the goal of developing an AGI.

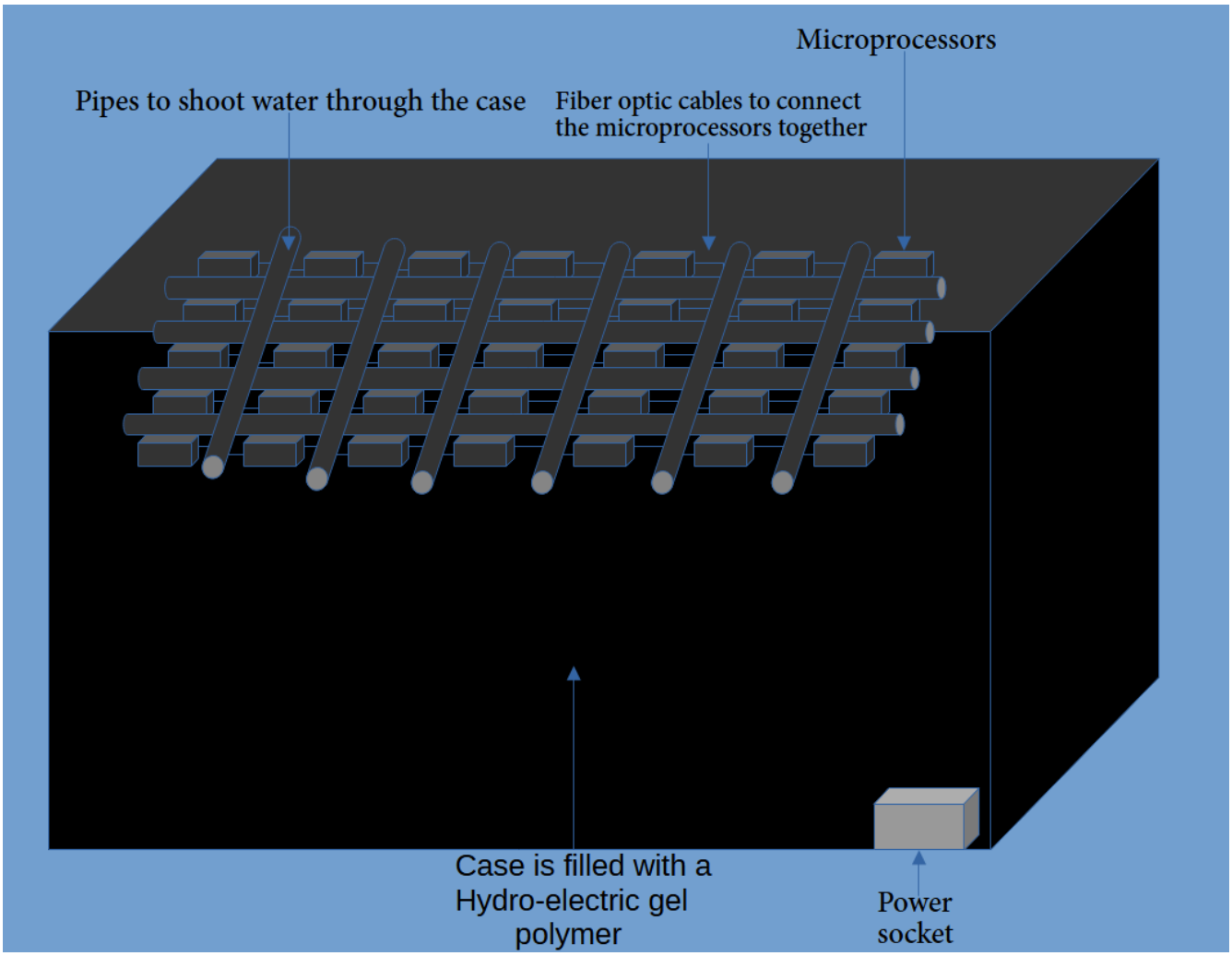
2. Physical Architecture

The Project Ahab system uses two different physical systems. The standard pourable computers that go to the customers and the primary pourable computers specially made to support the EAST system.

Standard pourable computers

The standard pourable computers consist of a parallel computing design utilizing a combination of a hydroelectric gel polymer and microprocessors that run the software injected into it with a SIC (Seed Integration Chip). For the powering and structuring of the device, there is a highly conductive gel polymer. The gel is a processed conductive gel consisting of distilled water, Hydrochloric acid fuming, Microcrystalline, carboxymethyl cellulose, pyrrole monomer, pottasium persulfate, polyvinal alcohol, PVA solution, Borax, and Graphene. This polymer is conductive enough to power the processors and router while also being malleable enough to pour into the case. The Pourable computer acts as a parallel computer. Processing requests and distribute them across a series of microprocessors that are inside of the gel polymer. The microprocessors are all contained inside of a fiberglass case and interconnected to the other processors with fiber optic cables. There is also a wire connected to the microprocessor and a splitter on the casing to take electricity from the gel polymer and power the processor. The microprocessors all work together with a series of autonomic algorithms to run any calculations assigned to it. The fiber optic cabling allows all of the microprocessors to work together very quickly and work together faster than a normal computer system using circuit boards with copper wires. This microprocessor system is efficient, removing the time hindrance of information processing through copper wires and the circuit boards, making the scalability of these computers much more efficient. Our pourable computing design is intended to be poured into a polypropylene plastic case

with a series of tubes on the outside to distribute water around the outside to cool the computer down in the event it overheats.

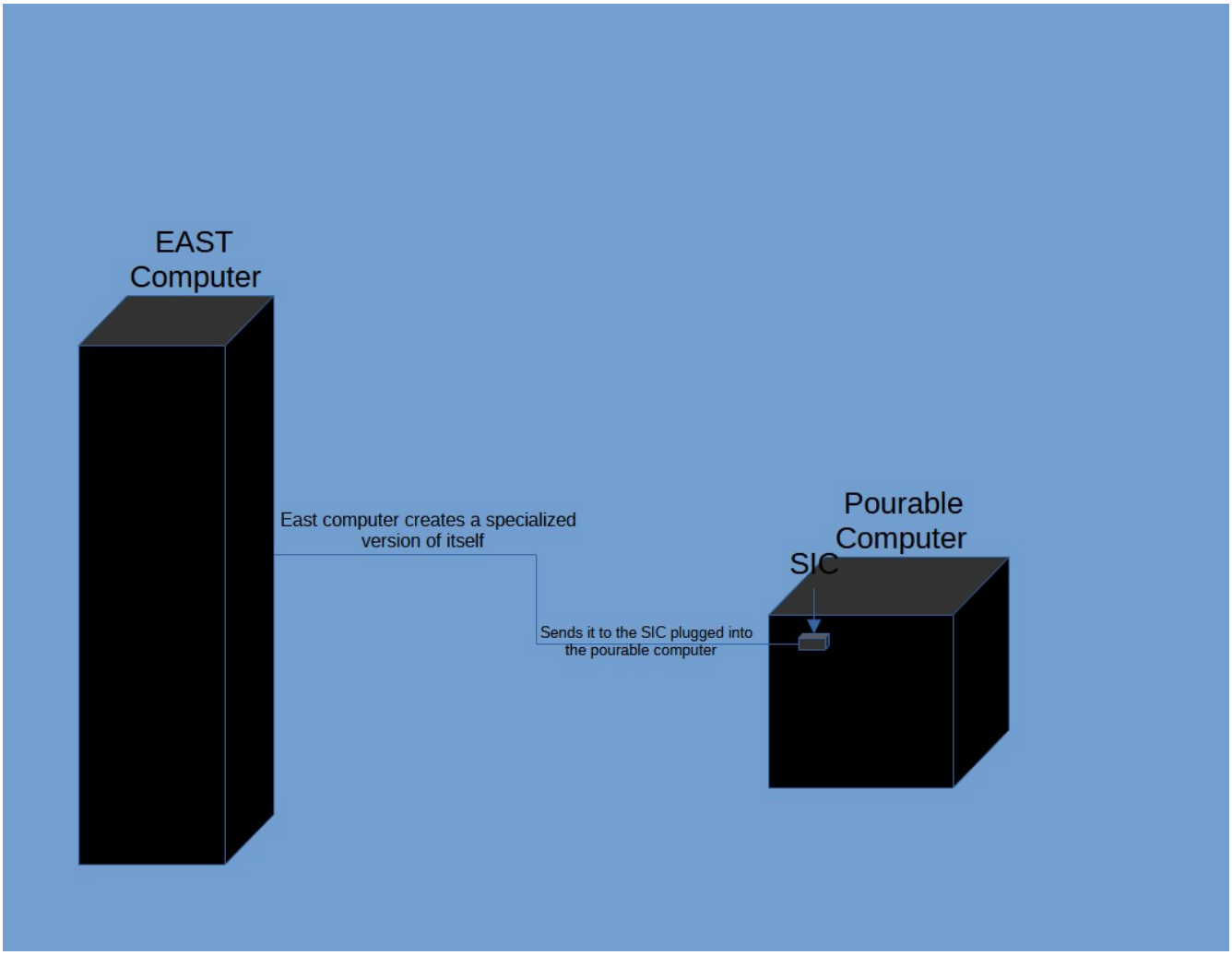


East system computers

The EAST computers are built in almost the exact same way, however it uses a series of very powerful CPUs instead of a series of microprocessors to have more processing power for training the AI and seeding it into the standard pourable computers due to the CPUs being turing complete.

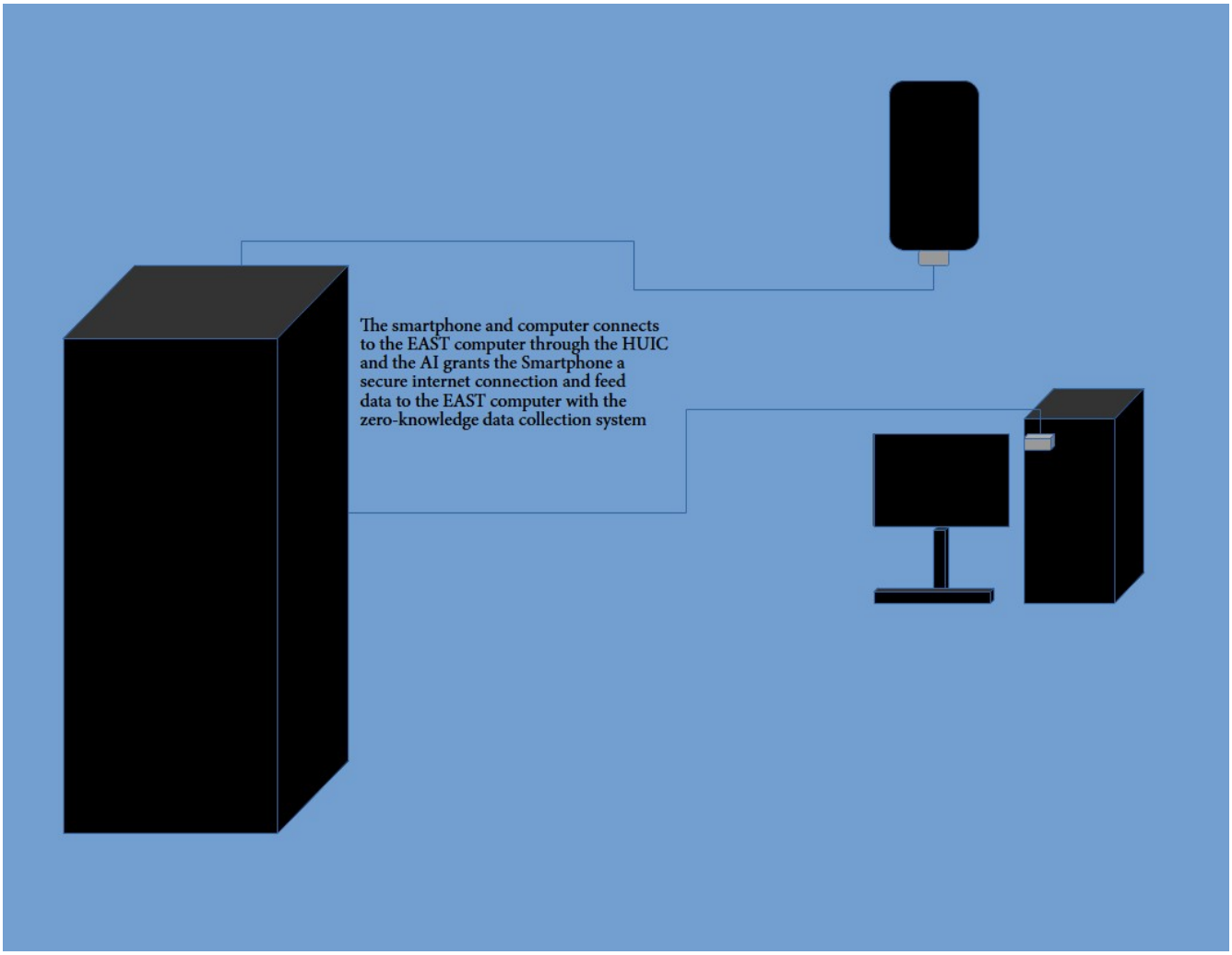
SIC (Seed Integration Chip)

The Seed Integration Chip is a small USB chip with a cryptographic key that allows the computer to reach and download the seed from the EAST computer. It also acts as a node that works with all of the other pourable computers for the Zero Knowledge Data Collection System.



HUIC (Heuristic ubiquitous internet connector)

The HUIC is a version of the sic that is able to connect to any device and allows them to connect together and feed data to the EAST computer with the zero-knowledge system. The HUIC is intended to be adaptable to any internet device that connects with the TCP/IP protocol stack, allowing them to engage in a secure internet connection via the EAST devices.



3. AI architecture

The AI architecture consists of an ANN (Artificial Neural Network) that works to improve the microprocessors capability to work in concurrency and fully utilize all of the hardware capability. The EAST computer uses a series of likelihood evolutionary algorithms to train the AI with zero-knowledge data collected from all of the standard pourable computers.

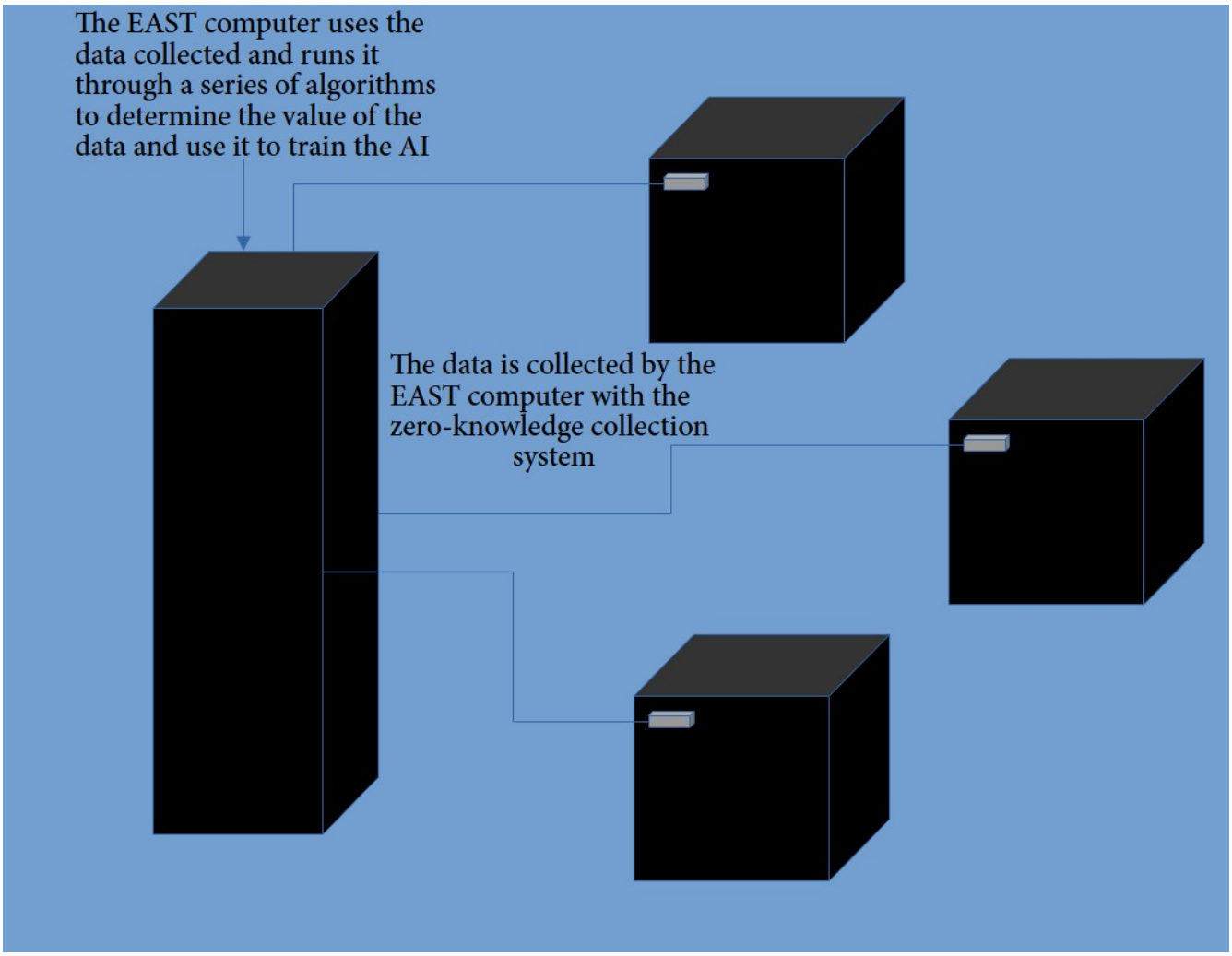
Likelihood evolutionary algorithm

The likelihood evolutionary algorithm system takes the data collected from the Zero-knowledge database and uses a series of algorithms to determine the likelihood of what will be useful and what will not be useful in order to only feed useful data into evolutionary algorithms which train the system to utilize %100 of the microprocessor capability. It determines whether the data collected is useful by comparing it to other data it already has. If a task has been performed enough times that the EAST computer has been optimized to the point that it can no longer be improved than it will not be put through the algorithm and instead removed. If the task has not been optimized to the point that it can no longer be improved than it will feed it through the evolutionary algorithms.

The algorithm for evaluating the likelihood of useful data consists of the following:

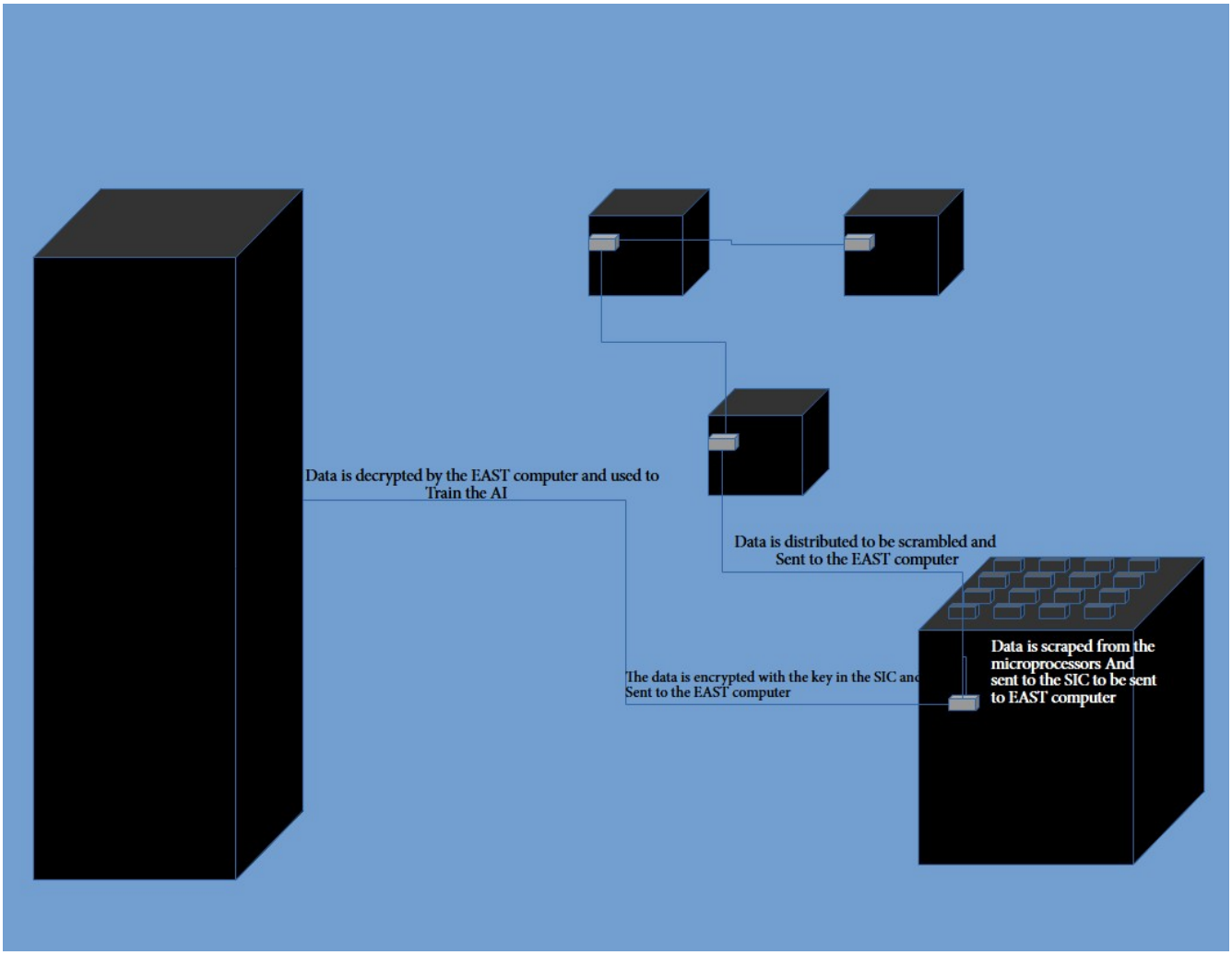
$$\mathbb{E}_{y\sim Q}[-\log P(y)] = \mathbb{E}_{y\sim Q}\left[\log \frac{Q(y)}{P(y)}\right] + \mathbb{E}_{y\sim Q}[-\log Q(y)] = \underbrace{D_{KL}(Q\|P)}_{\text{Minimized at } P=Q} + \underbrace{H(Q)}_{\text{Constant}}. \quad (11)$$

with P (arg maxy Q(y)) = 1 reperesenting the most frequent outcome.



Zero-knowledge data collection

The pourable computers processors constantly scrape data from themselves and sends it back to the EAST computer using cryptographic tunnels. In the process of sending it back to the EAST computers the pourable computers send bits of information between the nodes to scramble it so that the data can't be captured and reverse engineered.



Seeding system

The AI from the EAST computers creates a smaller specialized AI that is sent to a pourable computer that spreads itself among the processors and maximizes efficiency.

4. Path to AGI

The hardware/software feedback improvement loop presented by these data center computers allows for efficient, rapid development for AI that will lead to the point of being able to develop AGI. Specifically, the way that we aim to create an AGI is to create an air gapped, secure environment to build an EAST computer that we scale up and leave to optimize itself with the data we collect and feed it until it reaches the point of general intelligence.

5. Wide scale integration

This system has the capacity to be integrated into most any automated AI task. Some cases include big data computing, medical technology, school programs, electric cars, traffic management, and text/video generation. All of these tasks have the potential to be automated and thus optimized and improved with the use of the evolutionary algorithm system.

6. Incentives

The greatest incentives to use this system is efficiency. Being able to utilize %100 hardware capability as well as have the computing system be self managing allows saves many unnecessary costs. Having a greater amount of speed by cutting out the Von Neumann bottleneck allows greater potential for AI development and developments in the field of big data computing. On top of that the parts are cheaper and more efficient to produce as well.

7. Conclusion

The architecture of this system allows for many possibilities in the field of computing. Having the ability to utilize %100 of the hardware resources as well as have an expedient method for set-up, cooling, repair, and storage for big and small data computing unlocks many doors for future operations in the field of computing.

Bibliography

Electron conductive self-assembled hybrid low-molecular weight glycolipid-nanosilver gels

CRYSTALLINE COMPUTATION

CONTINUOUS AUTOREGRESSIVE LANGUAGE MODELS

Clever algorithms