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## ***Project Zero Dawn* could be the key to preventing Human Extinction and restoring Earth's biosphere. Part 2: AI Machines**

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### **Abstract**

In the video game series *Horizon*, the story follows a young Seeker named Aloy, as she investigates the hidden secrets of her forgotten world. In doing so she is faced with many challenges, primarily fighting giant machines and their rogue AI masters. This paper takes inspiration from the artificial intelligence and automated machine aspect of *Horizons* main plot. Looking at the development of the programs/machines and how they could assist in solving problems within our current era. This paper will contain many plot points from within the *Horizon* series. So, it is best advised to finish *Horizon Forbidden West* before continuing in order to avoid spoilers from the main story, allowing you to gain the best experience from the *Horizon* series.

**Keywords:** *Computer Game; Artificial Intelligence; Automated Machines; Manufacturing; Horizon Zero Dawn*

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### **Introduction**

In the world of *Horizon* [1], Earth has experienced a major extinction event thanks to the AI uprising [2]. The DNA of the human, fauna and flora are currently being stored within *Cradles* [3] awaiting the time that the Earth can hold life once more [4]. The planet is currently lifeless and barren, littered with scraps of machines and an inhospitable atmosphere. For the re-emergence of human civilisation *Project Zero Dawn* needed caretakers to continue human's role of preserving and restoring Earth. So, while AI caused the apocalypse, the new program made by Elisabet Sobeck [5] was created to fix the mistakes of her predecessor, her name was Gaia [6]. Gaia is the AI overseer of the *Zero Dawn* project; her primary function is the restoration of the biosphere and the re-emergence of the human race. In order to complete this task Gaia had nine subfunctions [7] each given a specific task to complete, for example ELEUTHIA [8] was the program for producing the human clones [4]. Each played a crucial role in the success of the project and if plot devices were excluded would have seen a complete reboot to civilisation.

Although our planet has not seen a cataclysmic event within recent history, problems faced in *Horizon* make many parallels with our own. Climate change,

pollution, energy, and food shortage to name a few. This paper will focus primarily on the AI and machine side of the project, terraforming will be covered in the next article. The goal of this paper is to investigate the potential for the AI inclusion within the project to be capable of being applied in industrial field to solve current world problems.

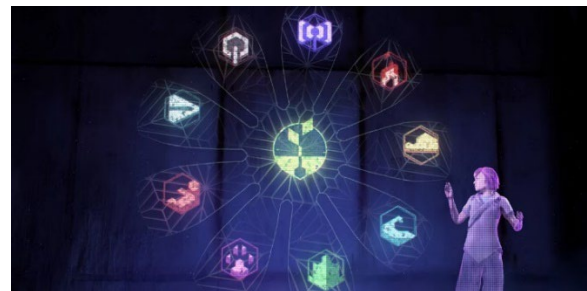


Figure 1 – Image of a holographic Elisabet Sobeck explaining the Gaia AI programs and her nine subordinate functions to Aloy [9].

### **Artificial intelligence (AI)**

Is a machine based simulation of human intelligence. The program has the ability to gather and combine immense quantities of data to form a database. Which has the capacity to process information at high speeds and at qualitative standards. The main draw towards AI technology is the efficiency in performing tasks, the counter to this is currently it cannot make clear judgment calls in the same way humans can. AI

learns and adapts through progressive learning algorithms using received data as the source code for its programming. By using networking similar to how humans use their neurological pathways to solve recurring problems. AI can find structure and trends in data allowing it to acquire new skills and adapt to new circumstances [10]. A prominent application of this in modern society is target advertising, AI uses the constant stream of information to analyse individual search preferences and establishes what advertisement would be most appealing to the user. Several technological practises are used to enhance AI capabilities, Gaia is seen to use Natural language processing (NLP) in *Horizon*, the ability of computers to analyse human sound waves and generate responsive speech. Siri in iPhones also uses NLP being able to give limited responses to questions asked. In comparison Gaia is an advanced version being able to have a natural conversation with a human. The proposed reason behind this was GAIA had access to analysis of a wide variety of human responses and the ability to scan human neurological reactions. These would make GAIA almost identical to a human conscience in comparison to AI today still being used primarily as tools.

### Automated Machines

Although AI is highly advanced within *Horizon* it is still only a program with no physical body. To assist the AI in their mission factories called *Cauldrons* [11] were established run by the Hephaestus AI [12] to produce machines to conduct specific tasks.



Figure 2 – Image of a car assembly line with automated machine arms being used to construct the frame [14].

Figure 2 illustrates the current use of automated assembly line in the industrial production of goods such as cars. Similar to the *Cauldrons*, the advantages of these lines is their accuracy, efficiency, and minimum required labour. An example of a *Cauldron* produced machine are *Scrapers* [13], scavenger type

machine based of hyenas. Their job is to break down metal in the world and composite it into a stockpile to be collected by another machine and moved back to a *Cauldron* [9] to be reused. In our society the *Scrapper* could be repurposed to breakdown old building and landfills to decrease waste on our planet's surface. The reason behind its appearance was inspired by current animals and their adaptation to the environment, allowing the machine to be active for longer. Steadily AI is being applied to the machine industry, however the technological development still pales in comparison to that seen in the world of *Horizon*. From this though it can be seen as a projection of what the field of automated machines could achieve [15].

### Agriculture

AI is currently being applied to many fields, one in particular is food production. In *Horizon* food needed to be farmed using machines in order for it to be available for the humans within the cradles [3]. The AI in charge of this was DEMETER [16], she used machines called *Grazers* [17], acquisition type robots based of deer or elk; their antlers served multiple functions from tilling fields to seeding the beds from their tips. For us AI can be used in a comparable way to increase food security in impoverished countries. AI can be used in a variety of ways in agriculture such as optimizing automated irrigation systems. Monitoring soil , crop, and livestock health. Using predictive analytics to decide on the correct area to farm. Harvesting and collecting produce. All these factors will increase the yield of crops annually. Also keeping a constant flow of crops so each country even when faced with unfavourable conditions, will still have enough food to sustain themselves [18].

### Conclusion

*Project Zero Dawn's* AI program can be viewed as the potential future of the AI and Automated machine industry. With the progression of AI learning, and the advancement of automated machines construction. Problems such as air, water and land pollution could become a past issue. Other issues such as energy shortage and climate change still needs human supervision, but AI can be used in the process. The adaptations made for the machines in *Horizon* although for viewer appeal could pose real world application as natural selection indicates these forms are best suited for their respective environments. All together the AI program has so far seen great success and the *Horizon* series depicts the potential future.

## References

- [1] Guerilla Games (2017) *Horizon Zero Dawn, Horizon Forbidden West*, [Computer Game] PlayStation, Sony Interactive Entertainment
- [2] Horizon Wiki (2017) *Faro plague*. Available at: [https://horizon.fandom.com/wiki/Faro\\_Plague](https://horizon.fandom.com/wiki/Faro_Plague) [Accessed: 25<sup>th</sup> February 2024]
- [3] Horizon Wiki (2017) *Cradle*. Available at: <https://horizon.fandom.com/wiki/Cradle> [Accessed: 25<sup>th</sup> February 2024]
- [4] Hann, B. (2024) *Project Zero Dawn could be the key to preventing Human Extinction and restoring Earth's biosphere. Part 1: DNA Storage*. Journal of Interdisciplinary Science Topics, vol 11.
- [5] Horizon Wiki (2017) *Elisabet Sobeck*. Available at: [https://horizon.fandom.com/wiki/Elisabet\\_Sobeck](https://horizon.fandom.com/wiki/Elisabet_Sobeck) [Accessed: 25<sup>th</sup> February 2024]
- [6] Horizon Wiki (2017) *GAIA*. Available at: <https://horizon.fandom.com/wiki/GAIA> [Accessed: 25<sup>th</sup> February 2024]
- [7] Horizon Wiki (2017) *Subordinate Functions*. Available at: [https://horizon.fandom.com/wiki/Subordinate\\_Functions](https://horizon.fandom.com/wiki/Subordinate_Functions) [Accessed: 25<sup>th</sup> February 2024]
- [8] Horizon Wiki (2017) *ELEUTHIA*. Available at: <https://horizon.fandom.com/wiki/ELEUTHIA> [Accessed: 25<sup>th</sup> February 2024]
- [9] Anna C. (2022). *Horizon Zero Dawn: Each Function of GAIA, Explained*, Gamerant, Available at: <https://gamerant.com/horizon-zero-dawn-gaia-ai-functions-purpose-lore-explained> [Accessed: 25<sup>th</sup> February 2024]
- [10] SAS (2023) *Artificial Intelligence What it is and why it matters*, SAS, Available at: [https://www.sas.com/en\\_gb/insights/analytics/what-is-artificial-intelligence.html](https://www.sas.com/en_gb/insights/analytics/what-is-artificial-intelligence.html) [Accessed: 25<sup>th</sup> February 2024]
- [11] Horizon Wiki (2017) *Cauldron*. Available at: <https://horizon.fandom.com/wiki/Cauldron> [Accessed: 25<sup>th</sup> February 2024]
- [12] Horizon Wiki (2017) *Hephaestus*. Available at: <https://horizon.fandom.com/wiki/HEPHAESTUS> [Accessed: 25<sup>th</sup> February 2024]
- [13] Horizon Wiki (2017) *Scrapper*. Available at: <https://horizon.fandom.com/wiki/Scrapper> [Accessed: 25<sup>th</sup> February 2024]
- [14] TM Robot (2023) *Why you Should Automate Your Assembly Lines*, TM Robot, Available at: <https://www.tm-robot.com/en/why-you-should-automate-your-assembly-lines> [Accessed: 25<sup>th</sup> February 2024]
- [15] Nevatio (2022). *What You Need To Know About Automated Machines*, Nevatio Engineering Inc, Available at: <https://www.nevatio.com/learn/automation-and-controls/what-you-need-to-know-about-automated-machine> [Accessed: 25<sup>th</sup> February 2024]

- [16] Horizon Wiki (2017) *DEMETER*. Available at: <https://horizon.fandom.com/wiki/DEMETER> [Accessed: 25<sup>th</sup> February 2024]
- [17] Horizon Wiki (2017) *Grazer*. Available at: <https://horizon.fandom.com/wiki/Grazer> [Accessed: 25<sup>th</sup> February 2024]
- [18] Lenny, D. (2023) *AI in Agriculture – The Future of Farming*, Intellias, Available at: <https://intellias.com/artificial-intelligence-in-agriculture> [Accessed: 25<sup>th</sup> February 2024]