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AUTO RESEARCH BOTS & AUTO RESEARCH BOT SOFTWARE

ABSTRACT

The Auto Research Bots or ARB are the next gen robots that provide the basis for outer space research to far distant exoplanets that lie under the goldilocks' zone i.e. the planets that are capable of sustaining life. These robots are capable to simulate an actual human being and help to classify a planet truly sustainable for living. These robots can be considered a viable replacement for astronauts and also prevent any loss of life during the dangerous missions on outer space.

The Auto Research Bot Software or ARBS is the software that will function as the soul for the auto research bots. This program is an AI program that will be written in various machine learning (ML) frameworks such as Tensor flow, Microsoft CNTK and Torch.

DESCRIPTION

TECHNICAL FIELD

The technology relates to the general field of Artificial Intelligence and Machine Learning, and has certain specific application to Robotics.

This invention pertains to intelligent software (AI) and intelligent functioning robots.

Artificial intelligence is a branch of computer science that aims to create intelligent machines. It has become an essential part of the technology industry. Research associated with artificial intelligence is highly technical and specialized.

It is directed to system architecture and methodologies to support ubiquitous deployment and execution of software on a machine capable of research in outer space.

BACKGROUND OF INVENTION

Artificial Intelligence or AI is becoming more advance than ever before from missile detectors to simple Smartphone apps; it is growing tremendously and will in the coming years. The ambitious short-term and long-term goals set down by the various national

space agencies call for radical advances in several of the main space engineering areas, the design of intelligent space agents certainly being one of them. In recent years, this has led to an increasing interest in artificial intelligence by the entire aerospace community but as many know, a robot can never function as well as a human being. To prevent loss of life, we will have to create a robot that is intelligent enough to function on its own with little to no outside help. Many space agencies have created AI capable of detecting exoplanets and testing it to support life but it can never be as good as a full human simulation machine capable of testing even the slightest of change from external like the skin to even the tiniest changes in the genetic makeup of the system. The need for robot as human replacements is in demands for a long time.

Intelligent, autonomous robots—long the stuff of science fiction—are fast becoming a practical reality. Although software's ability to reason, generally known as artificial intelligence, is still limited, there are useful applications. Most of these applications, however, are very specific and “hand coded” for execution on particular computing platforms, using well-defined data presented in well-defined formats. We do not yet have a generic software agent that can work effectively with all types of information or “knowledge” on any platform where that knowledge might be found.

Application of AI is being extensively researched in the domain of satellite operations, especially in supporting the operational mechanism of huge satellite constellations, which usually includes many facets – relative positioning, communication, if cycle management etc. Machine Learning is being used for analyzing and processing high-resolution satellite imagery and for getting exact and precise visual representations. Machine Learning is already an invaluable tool in the analytics of complex remote sensing data and telemetry data. Beyond Earth Observation, for powerful image and data processing and analytics, Machine Learning is used to process data from deep space missions. There are certain Mars rovers that are AI configured and navigate on their own. But extensive use of rovers in the future would not be possible without up scaling existing research capabilities.

ARB will be a robot that will be way ahead of its time and would be a pioneer in space exploration. It will help humanity to explore many places in space which are practically impossible in present time. The robot will help in the creation of advance robots that fulfil the needs of an astronaut in the first place and will help in prevention of endangering the life of the people who embark on such missions. ARB will also help in detection of more habitable exoplanets and also maybe even other intelligent life that may exist. It will also be long time durable due to its hybrid sources. It will also help us in colonizing the habitable exoplanets and will determine the ingredients we need to survive in those kinds of environments as they will analyse whether a human without an artificial suit could survive in those conditions. The software would be of great use of these probes as it would give them a partial mind with the ability to listen to the commands which would be partially guided by humans to help it prevent any kind of wrong decision making while in a situation and would learn just like humans. It would also be more efficient than humans as a human would need air, water, food etc. to survive in space. The major advantage of ARB is that it would serve as a fundamental

for future explorations. The robot would be intelligent enough to sustain on a planet just as a human would and would help us to achieve more in the field of space researching and colonization.

BASIC DEFINITONS

ARB stands for Auto Researching Bots. These are the robots that are intended as space exploration artificial beings which will be able to simulate a human and send various signals back to the researchers and help them to find habitable planets outside our galaxy. These robots work on artificial intelligence using the ARBS Program. The auto bots will use various forms of AI Technology to input and process the senses a human possess including having the ability to breathe like normal humans virtually.

ARBS stands for auto researching bot software that are intended for the robots. This program works on standard AI codes. All the features will be implemented using the ARBS program. The program will be able to input and process information and be able to output on the basis of several options and the situation it is in.

The central server mentioned in the summary is a satellite that would contain thousands of written code and also human support to help robots when there are in any kinds of distress and also to assign robots with missions.

***Times of conflict mentioned in the summary refers to a situation where the robot will not be able to respond or is malfunctioning

SUMMARY OF THE INVENTION

The invention is about a robot that will serve as a viable replacement for explorer astronauts in outer space capable of independent functioning and exploring possible planets in the universe. These robots will be able to simulate senses similar to a human being would when exposed to the temperatures of a potential habitable planet.

The robots will be able to simulate inner workings of a human being by taking in input in the form of pressure, composition of atmosphere, gravitational force, planet temperatures and any kind of harmful radiations. The input will then be processed by the software to be classified as adaptable or not. The robot will also be able to detect any single or multicellular life forms that exist in the planet's environment. This will help us to detect any possible alien life forms that exist around us especially if they are intelligent alien life forms.

The robots are capable to take off and land on their own. This will be possible by the ignition fuel (most probably hydrogen and oxygen) bundled inside. These fuel chambers will be used for taking off and in times of conflict***.The electric motors can also function with the help of solar energy whenever possible. The robots will have thrust systems

which they will use to move around. They will also possess wheels to save fuel whenever possible to help with its endurance.

One of the major functionalities of the robot is their ability to communicate with other robots. This will be possible through the ARBS program where robots will be able to interface each other in the times of need like when the need assistance during a malfunctioning or shortage of fuel. During these times, a robot will send out a distress signal to be caught by the nearest possible robot for aid.

In order to survive, human need various organic and inorganic elements such as carbon, oxygen, silicon, phosphorous, calcium etc. To meet these needs, the robot will have functionality to detect these elements by using in-built detectors. This could also help searching for profitable resources such as precious metals, fossil fuels etc.

To travel in space, though there is a very low chance to be obstructed by space debris such as meteorites, asteroids, black holes etc, there is still a chance for a perhaps hazardous collision that could render the bot harmless. So, to prevent these, the robot will have various sensors built into the body that could detect objects from hundreds of thousands of miles away.

To protect itself from any kind of harm, the robot will also be equipped with some kind of self defense mechanism that will only be initiated when commanded.

The software for the robot, ARBS will serve as the brain and soul of a robot. The robot will manipulate the input given by the sensors to process in the human simulation if there are any possible major changes from external to internal such as gene altering due to radiations. The software will be written in ML codes. It would one the world's first intelligent artificial beings capable to think and process information like normal humans would. They would be able to communicate through an interface with other robots as mentioned above. The program will be able to learn new survival tactics in the universe on its own. The software will be intelligent enough to communicate in a little social manner with its peers and can also connect with other devices to work together in multi-bot missions they would be send to.

To be able to function, the robot will manipulate what to do by sensing input, seeing if there are any possible outputs and then process it. For example, if it finds a planet with moderate temperatures, it will be able to sense an output i.e. enter the planet for further analysis and exploration. The program can create outputs on its own and store it for further references when it comes in new kind of situation.

For any further help, it would contact a central server that would be located in earth or would be suspended freely in the universe. These would function when the program is out of options or in case of an emergency to self defend to destruct in the times of conflict.

To conclude, the ARBS would be no less intelligent than an actual human being and at the same time would follow the command and would learn from those to adapt in further explorations. The software would help scientist to help humans in adapting to that climate so that they could potentially colonize. The software would also have the ability

to sense and prevent dangers posed to the robot by using the basic reaction in its code in case of an emergency like fight or flight strategy in the instinct of humans.

Claims

What is claimed is:

ARB is a robot that can

- Process senses of a human by predicting the outcome based on a series of calculation and data collection of environment around them.
- Will be able to report temperature and pressure and classify it as adaptable or not.
- Will be able to sense objects and react to them just as a human will do.
- Able to convert itself into forms that will be help it to travel.
- Will possess the knowledge to communicate with other robots and can aid them in case of the latter's malfunctioning.
- Will possess the ability to detect single-cellular, multi-cellular or any kind of life forms either developed or being developed naturally.
- Able to send data packets through radio waves at a faster rate than normal satellites.
- Will communicate with a central server to report any findings and can receive commands from the same.
- Will detect various elements that are known, unknown and or toxic to our life form.
- Will work on solar energy and will be able to harness some fuel on its own.

ARBS, An auto-intelligence software that will be able to

- Detect and identify various situations.
- Can react to the said situations from the options coded into its program.
- Can create its own way of reacting when experiences a situation.
- Can communicate with the central server if it can't find a solution to its problem.
- Able to intelligently detect and avoid a space debris.
- Can work together with other AI in groups or teams.
- Can simulate the working of a human body from various inputs given by the robot.

DRAWINGS

Figure 1 - A Robot Concept.

Figure 1 illustrates an overview of the ARB robot. It is a robot that will work on the software ARBS.

I illustrate the head of the robot. This component will house the sensors which will enable it to perform motion on its own. It will have sensors that will identify their air composition and pressure.

II illustrates the limbs of the robot that will have sensors that will identify the element the robot is holding and the limbs would be workable so that they are able to repair other robots when a distress signal is send to them.

III illustrates the main body that will house the circuit components that will process information using the ARBS. The black component will act as an antenna which will be used to send data packets. The back of the component houses the propulsion engine that will be used by the robot to travel. It will also house solar panels that will help it to recharge while on the go.

IV illustrates the lower limbs also meant for motion and will contain additional propulsion components meant for the robot. These will also contain the temperature related sensors to send to the main body.

V is an additional component for the collection of samples and additional antennae for sending signals back.

VI is the feet of the robot connecting to the limbs for motion.

Auto Researching Bots