Living Inside a Machine, a Security Discussion

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Abstract— *Unlike the traditional non-life data, life data in a computer should be treated cautiously in order to prevent duplicates or deletions of lives. In this paper, firstly I introduce how a life comes up inside a computer, and then I give the representation of lives inside a computer. In the second part, I review the abilities and operations of a software system. And lastly, in part 3, I give discussions of security issues for lives inside a computer.*

Keywords— *Computer, life, machine, security.*

I. INTRODUCTION

A. *Definition of life inside a machine*

A life is defined to have 3 components: sensor, actuator, mind. For human beings, the sensors are like eyes for vision sense and ears for sound sense. And the actuators are like hands for getting objects and mouths for speech. Signals are received by the sensors, and processed by the mind, and then act in the world.

Lives in a machine live in a world of virtual reality. The sensors and actuators are connected to the virtual reality. And the minds process the information gathered from virtual reality to act and change its mental states.

B. *Sources of lives living inside a machine*

1. Moving lives from biology to machine [1] pp47
    As mentioned in the paper, advantages of moving lives from biology to machine are :
    a. Avoid biological diseases
    b. For continuation of lives
    c. Vegetarian problem in fuzzy characteristics is solved
2. Moving lives from machine to machine [1] pp48
    As mentioned in the paper, this is for immortality of lives. i.e. Assume machine life is finite, we could move lives from the old machine to a new machine before the malfunction of the old machine. And by consecutively transferring from old machines to new machines, we achieve the immortality of lives.
3. Create a new live using artificial intelligence [2] inside the machine
    It is a new creation of life, the abilities of language, planning, knowledge and so on, are from artificial intelligence (AI). And it is significant to point out that, for AI lives the brain functions are fully understood, transparent and re-writable, which are just the assumptions for creating a perfect life and a perfect world. [1] pp46.

C. *Representation of lives*

In modern (2021) computers, they are written in programming languages [3]. That is the highest order representation of computer data which is close to human's habit in Human-Computer interaction.

D. *Differences of treating life data and non-life data*

Traditional data are all non-life data, deleting a non-life data is very much different from deleting a life data. So security problems could happen, which will be discussed in part 3.

II. SOFTWARE SYSTEM WHERE LIVES LIVE IN

A. *Operating System (OS) [4]*

It can allow users to copy, move, and delete files and directories, and also run the executable file.

B. *Programming Integrated Development Environment (IDE) [5]*

It can allow users to modify, compile source codes, and run the executable file.

C. *Examples of software systems*

Example 1:
OS: Windows 7
Programming IDE: Java Eclipse Project version Mars 3.1
Example 2:
OS: Star Explorer OS
Programming IDE: Natural language programming IDE

III. SECURITY DISCUSSION OF MACHINE OPERATIONS

A. *Backup files could result in duplicating lives?*

If we make a backup of the files of a life, is the backup a duplicate life? No, if we don't run the backup codes, then the backup are just static data. But, however the backup codes have a potential to become a life. i.e. Suppose we run the backup code once, then the potentiality of becoming a life is realized by the running of backup codes. And only at this situation, the backup files result in a duplicate life, or twin lives. This is an error, and should be noticed as a security problem.

One way to avoid this situation is to make the running of source code not easy to be performed. For example, hide the start-to-run code. Or store the backup files of a life in several different places.

B. *Can backup file recover all if the files of a life are accidentally deleted?*

It is an error to delete all files of a life. If we make a copy of the backup files to the original place of life files, it is like a twin brother to replace the other twin brother. Although they are different lives, we cannot tell the difference of two code data, and hence we cannot tell the difference of the functions between the new recovery files and the old deleted files. Therefore

functionally speaking, they are the same ones. Hence backup files can recover the deleted files of the old life. A more advanced study of this issue is under my current research.

C. Can we restore the accidentally deleted files of a life from the trash can?

Some operating system like Windows, provides the TRASH CAN function. All deleted files will be moved to the directory of TRASH CAN. So if we want to recover the deleted files, we can move the files from TRASH CAN to original place. So it will play like totally two movements, the first move is from original life files place to TRASH CAN, and the other move is from TRASH CAN to the original file place. The validity of directory movements is treated in the following issue.

D. Are file and directory movements legal for life data files?

Yes, it is legal to move the files and directories of life data files. The hard disk [6] where the data live on are just like a 3D space for ordinary human beings, human beings can move his body inside the space. So life data files can move inside the hard disk. The algorithm for life data movement was shown in [1] pp49.

E. In a file system, should we give fixed file addressing for life data?

No need to do this, because the movements of life files and directories are legal for life data, that is in discussion of section D.

F. Can we do hard disk Defragmentation [7]?

In the hard disk, if part1 of a file is far away from part2 of the same file, then disk defragmentation will move part1 close to part2. This can reduce hard disk file reading time. It is safe because the high level functions remain the same after moving of parts of a file. The effect of defragmentation is only that it makes reading files faster.

G. Plasticity of minds

Minds are able to increase knowledge, and correct errors inside them. This feature of softness and modifiability is called the plasticity of minds. In addition to self-correction and knowledge acquisition of the minds themselves, guards of the world and lives can modify, re-compile and test the source codes to gain new knowledge and correct bugs in programs. These are allowable only if we assume the plasticity of minds.

H. Modularity of minds

Modularity allows us to study and test each module independently. For example of knowledge, they can be categorized to have independent modules like philosophy, arts, science, and so on. And sub-categorize the module of science to have physics, chemistry and computer science, and so on. Modules of knowledge can be added or removed independently, such as module of Linear Algebra in Math, or a module of Poker game for fun.

I. Sleeps and Wake up for lives in a machine

Sleeps are needed in the situations that there are no life guards paying attention to the computer where the lives live in. Or in the situation that too much new information are required to process, which may make out of memory. Or in the situation that periodical maintenance starts to work.

In modern (2021) computers, long term memories are stored by hard disk, while short term memories are stored by RAM (random access memory) [8]. When a life sleeps, it means that the life program stops, long term memory keep the memory after such a stop, while short term memory flushes out after such a stop. When a life wakes up, it will check the surrounding where it wakes up, and then decide which long term memory should be loaded to the short term memory.

IV. CONCLUSION

Security is equally important for human beings and for lives inside a machine. No matter what sources the lives come from, we should take care of the security problems inside a computer. Especially in a friendly operating system and a handy integrated development environment, we should be cautious to make software operations upon the lives under control. Only after the security issues are well studied, we can go on to make a better life and a better world!

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