



UNIVERSITAT POLITÈCNICA DE CATALUNYA

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PPAI Final Work

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Assigned character: Silvana

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1 Abstract

The Vestigial Heart is a very interesting book that discusses the role of robots in order to reestablish emotions in people. It is set in a futuristic world where all the people cannot live without their robots and everything needs the robotics help, in this world, people lost their feelings and emotions. The character on which my paper focuses is Silvana, a woman in love with the past that read a lot of books from that period. The breakdown of the book is the decryogenization of Celia, a girl of the 21st century that becomes the only person who has feelings, indeed is used by Silvana to understand the past century with some clinical sessions, and is also used by Leo, a bioengineer that is building a prosthesis for emotions. So these two characters are trying to ripristinate human emotions from two different points of view, during the book they interact together and discuss mixing up their idea until Silvana understand that robot is the only last chance to retrieve emotions. This paper discusses Silvana's point of view on the available technology, its limits in its use, the essential information to understand it, and my personal opinion about the role of education and what knowledge is necessary to refuse to adopt a particular technology. My ideas are very similar to the ones of Silvana since I think AIs should be regulated and not overused and above all to understand and predict the consequence of using AI.

2 Introduction

Robot regulation and understanding are often underrated, the problem is that people don't realize immediately the risk that is far away. If there is a new technology the first instinct is to use it for the proper purposes. But what should be the first thought should be made? A brutal example is the autonomous killer that can be used in a country to maintain the peace and regulation of the country, but obviously, a killer robot could be constructed by someone that wants to do something evil; and this can be applied to millions of technology like the nuclear reaction, the smartphones, etc... Technology is a very important tool, but what is its limit? In this paper Silvana's point of view will be discussed, then there is my thinking about education and the necessary knowledge for the use of technology. In the paper, Silvana shows her doubt about technology and few people care about her. However, I think countries should first educate people about the new technologies and understand what are the risks, pros, and cons. The new technologies are left a free source to everyone. A counterargument to this could be that people don't need education but the regulation of laws is enough. Regulation is always a good thing but the strict following of rules is not enough. People should understand the problems and the consequence of their technology.

3 Ethical, legal, socioeconomic and cultural aspects of the technologies derived from the investigation of Artificial Intelligence

Artificial Intelligence is always seen as an item to use to solve problems. Anyway, the book showed much input for discussion about the ethics, the legality, and the socioeconomic consequence of AI inserted in our lives.

3.1 Silvana's point of view of the available technology and its limits

3.1.1 Silvana

Silvana is one of the characters in the book that changes her point of view during the development of the story, she is an assiduous reader of past books and a fan of the past century culture. She is a masseuse and spent time doing clinical sessions to reprimatinate people's feelings through the massages in specific points of the body. Through tactile stimulation, she tries to let the people understand they have a body even if for some of them it's too late: drastic actions are needed to avoid the boomerang effect, which represents the index of human development. The boomerang is the extreme limit and the problem of technology. Silvana argues that despite efforts to improve human development, Progress has slowed society, and now it is on a declined curve. She attributes this to the "Peter Pan generation," which refers to individuals who take a long time to reach adulthood and are unwilling to take on responsibilities. This thinking at the beginning of everything makes a preview of the change in her way of thinking. She, in fact, understood the big problem of technology that deletes people's emotions and, with the clinical sessions, is trying to start a very long and painful path toward emotional recovery. She is initially very skeptical about the technologies that spur creativity; in fact, she discusses this with Leo that is the bioengineer in charge of that type of robot.

3.1.2 The Change

Three happenings make a change in her way of thinking. The first is the arrival of Celia: firstly, the woman tries to help her fix the emotional scars with the use of massages, and also Silvana wants to study her in order to understand better the emotions and feelings since Celia has been cryogenic and she is the only person that didn't lose emotions. The second breakpoint is the death of Xis, Celia's friend which makes a change in poor Celia that starts to desperate and blame herself for the death. Silvana at that moment is aware of the only possibility to save the girl and eliminate those bad emotions in a clinical session with questions. She avoids bringing her to the evil company of the doctor with the robots that will never solve the problem. However, after she starts a collaboration with Leo. They first interact

with a lot of doubt, in fact, she is worried about the technology, but in the end, they work together for the same goal. In fact, Silvana understands that the only solution to get back the feeling in people is the use of a prosthesis and indeed at the end of the tail, she helps Leo to make the experiment giving a personal and professional point of view. Leo discovers the possibility to transmute emotions, and Silvana helps him to understand the emotions even if she has already doubts about possible unpleasantness. In the final chapter, Silvana gives a presentation before the Ideological Committee about the concept of the "boomerang effect," and the fact that they are in the descendent parabola of it. Silvana suggests that the solution may lie in looking to the future rather than the past and embracing new technologies and ways of thinking. Finally, she mentions Leo's research on artificial intelligence and suggests that AI may be able to help solve the problem of declining human development. Silvana understood that the main problem of technology is evidently the lack of emotions due to the dependence on robots.

3.1.3 Limits of the technology

Another important limit that Silvana, in some parts of the book, focus on is freedom, for example, she complains when they spy on Celia for their personal purposes highlighting the lack of freedom that in this period of time people have. Another clear example is the scenes inside the Doctor's company where people were always spied and controloed, including its member as Leo.

3.1.4 Understanding enough the AI

As it is possible to understand from the previous chapter is evident that Silvana knows that it is impossible to have always the essential information to understand it. The proof is the accidents that happened during the book, firstly with the disappearance of Xis, and then with the death of the Doctor. Even if she starts to use technology to ripristinate feeling she will have always doubt and she knows that the use of it can bring to risk derivated to some that we don't know exactly.

3.2 My Opinion

3.2.1 Role of education

During the centuries the common factor in the evolution of the species was the **education**. The transmission of knowledge and teaching to the children is the first step in order to not making the same mistakes and the possibility to improve the culture, the quality of life, and the common welfare. This must be applied also to Technology, in particular to AI. It is a great opportunity and a great advantage that people should have the possibility to use. As described in the book, if it is not used properly it can bring to the *boomerang effect*. Every powerful medium has some contraindications and it is important, for the human being, to predict and avoid

them. The imposition of laws and strict rules is not enough. They are temporary remedies that work in the actual world, but what could happen tomorrow? The key is to raise awareness among the people and sensitize the children and conscience of people. The most important thing is to educate people and make people understand what means to use technology and its consequence. Technology can create dangerous situations as in a movie like Terminator. This is one of the more risky problems of technology that should take into account. And we need to understand everybody that weapons are always a problem since it's obvious that sooner or later they will be used by someone evil. So, the evolution of AI should be conscious of the fact that this technology will take a different branch of a tree and nobody knows all the possible combinations of possibility. However, the main problem technology can bring, is highlighted by the book: the disappearance of feeling. This book talks about a futuristic world but it is super actual. People started to live with their phones decreasing the time spent with other people. Obviously, this discourse is super broad and I will stop now, but the lack of awareness of people has already started the **boomerang effect**. A way to solve this problem is the **education** that should be done in schools or in the workplace. It is essential to make the ethics, culture, and sensibilization about technology, greater in people. In fact, AI is growing very fastly and it is a problem that education is instantiated in the previous century. People must understand the role of robotics and its possible future. Some key areas of AI education might include: Understanding the basics of AI, including how it works, its capabilities and limitations, and the types of tasks and applications it can be used for. Learning about the ethical, legal, and social implications of AI, including the potential risks and benefits of these technologies and how they might impact society and individuals. Understanding how to design and build AI systems that are transparent, explainable, and fair, and that minimize the risk of errors or biases. Learning about the ways in which AI can be used to solve real-world problems and make positive contributions to society, such as in healthcare, education, transportation, and environmental protection. AI education can be provided through a variety of channels, including schools, universities, professional development programs, and online courses. It can be targeted at different audiences, including students, professionals, policymakers, and the general public. Ensuring that people have access to high-quality AI education can help to foster a more informed and responsible approach to the development and use of these technologies.

3.3 Necessary knowledge to the refuse to adopt a particular technology

Everything should be based on the risk. It is crucial to evaluate it and understand which are the most important problem derivated from a particular technology. Everything has a risk, a vacuum cleaner can be hacked and can kill someone but this should not mean that we have to avoid completely it. The technology must be regulated and understood. The prime example is the autonomous weapons that bring many risks as: - How much do we trust an autonomous system - the confidence in the evaluation process - the unexpected behavior in a real-world - system fails. The second example is the tradeoff that technology creates due to its use. Using

technology makes a person dependent on them and often reduces the thinking and emotions people. The main solution is to avoid bad repercussions and take from technology everything good.

3.4 Ethics of cryogenics

Cryogenics is a very useful thing that could a very good technique in some specific situations. It should be used to help a person and not for their own purpose. For example, in the case of Celia, it was super-useful to save her life, but it can be used also for example during the star travel. So from a practical point of view, it could be a super useful technique. From an ethical point of view, it creates some important problems since cryogenics take off a person from his world and transpose him to a completely different world with different principles, ideas, ethics, and morality. Anyway, I think that life is the most important thing so if cryogenics was done to save a life it is good. On the other hand, cryogenics brings many consequences that must be taken into account:

- Hypothesizing a future world with the possibility of stopping making regulations for his use and in particular the problem of the price and so the distribution of the technology that will go only to rich people.
- The second and I think the main problem would be the **overpopulation**. The possibility of stopping the life and wait time would bring the already high overpopulation in the world to critical levels since everybody would prefer living in the future waiting for better periods.

4 Conclusion

As it is possible to see from the central paragraph, education is so important to make people think themselves about the ethics of using AIs and robots. The main solution is the teaching in schools and the sensibilization of the population about AI. Its development is unstoppable and potentially without limits. Some limits should be set but it's a solution for the present, but more for the future is **education**. It is important that the regulatory framework keeps pace with the rapid development of AI and is flexible enough to adapt to new challenges and opportunities as they arise. Education about artificial intelligence (AI) can help people understand and use these technologies in a responsible and ethical way.

Whole bibliography

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The references for the paper in our example are Anson and Schwegler 2010 and Rodburg 1999.

Appendix