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Criminal Liability of Robots in the Healthcare Sector: A Critical Analysis

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ABSTRACT: Since robotics technology has advanced, it has been predicted that human workers will soon be replaced by robots. Robots are predicted to be extremely important in the healthcare sector in the twenty-first century. As artificial intelligence has grown in popularity and is increasingly used to replace humans in a variety of fields, there are now a number of unresolved legal issues.

This study article aims to analyze the laws (that may be applicable to robots and/or humans operating them), legal issues regarding the use of robotics in the healthcare industry, and the legal ramifications of such usage, such as liability in the event that robots used in healthcare are negligent.

I. OVERVIEW

Because robots are capable of performing a wide range of complicated tasks that are challenging for humans, the use and application of robotics in healthcare is a rapidly expanding topic in technology. According to John Markoff (2014), it covers everything from robotic nurses and eldercare robots to individualized healthcare, patient rehabilitation, and robotic surgery.

Oliver Lemon, a professor in the computer science department at Heriot-Watt, claims that the department is making significant progress "There have been some really big advances recently in Artificial Intelligence (hereinafter referred to as AI), in particular in computer vision and in human language processing," according to him (Kenneth Macdonald, 2017).

It has to do with recently developed new machine learning techniques as well as much, much faster computers. Thus, we have reached a stage where these machine learning techniques may be combined with robotic systems." (Macdonald, Kenneth, 2017)

According to robotics professor Sethu Vijayakumar of Edinburgh University, we are just starting a process that will change our way of life and work over the next twenty years.

"All of this confluence of robotics, AI, social network systems and knowledge sharing is driving a huge, new revolution," according to him.

Aster Medicity, Kochi; the Amrita Institute of Medical Sciences; and the Institute of Medical Sciences (KIMS). Apollo Gleneagles Hospital in Kolkata is one facility that uses surgical robotics (John Edwards 2016). Over 50 firms have raised their first rounds of equity since January 2015, indicating a recent increase in the number of startups joining the healthcare AI industry (CBINSIGHTS, 2017).

By 2025, artificial intelligence (AI) technologies may be used for anything from managing population health to creating digital avatars that can respond to particular patient inquiries. – Frost & Sullivan analyst Harpreet Singh Buttar (CBINSIGHTS, 2017).

Out of all the areas that AI is involved in, CB Insights states that the healthcare sector has experienced the highest deal flow. Leading companies in the market, including Microsoft, have analyzed options for effective cancer therapy as well as treatments for chronic illnesses and medication creation. (Jonathan Cohn), Google (The UK National Health Service



uses Google's Deep Mind to assess medical images and identify health hazards). The industry is expected to grow significantly, especially with IBM concentrating on it (Sarah Bloch-Budzier, 2016; Jonathan Cohn, 2013). IBM's Watson is currently active in cancer treatment. In addition, Axisis, a technology created by Cambridge Consultants, is intended to execute cataract procedures more accurately than a human. (Adee Sally) In August 2017, the Ministry of Industry and Commerce in India established a task force consisting of 18 members, including industry leaders, researchers, academics, and experts. The task force was named "Task force on AI for India's Economic Transformation" and was chaired by V. Kamakoti, an IIT Madras professor. The task force was actively involved in the work of governmental bodies and ministries, including NITI Aayog, the Ministry for Electronics and Information Technology, the Department of Science & Technology, UIDAI, and DRDO. AI and healthcare are two significant areas that the task force has focused on, in addition to the other nine relevant topics. The following are the main obstacles to India's large-scale adoption of AI systems, according to the report:

- (i) Building electronic repositories of health data that contain enough well annotated health data for machine learning applications
- (ii) Developing a clinical decision support system at the national level to help less experienced clinicians handle routine clinical situations more effectively.
- (iii) Encouraging data collection, archiving, and availability with adequate safeguards, possibly via data marketplaces / exchanges.
- (iv) Ensuring data security, protection, privacy, and ethics through regulatory and technological frameworks;
- (v) Digitizing systems and processes with IOT systems while providing adequate protection from cyber-attacks.

II. LEGAL CONCERNS

Healthcare, Robotics, and Privacy

Calo lists three primary privacy threats associated with robotic technology: social media, access, and surveillance. Physical privacy is related to two out of these three types of privacy. Drone espionage in military settings is one example of how surveillance frequently incorporates a physical component when it comes to robots. In a similar vein, individual citizens, businesses, or the government might misuse home healthcare robots for spying. One could see a situation in which security services

Healthcare, Robotics, and Privacy

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Robots manage the informational environment for humans in a more comprehensive way than only influencing their users' physical surroundings or offering restricted, task-specific information (Felzmann, H. et al. 2015).

According to a 2007 study by Syrdal and colleagues, the majority of subjects experienced anxiety when placed in a situation where robots had the ability to reveal personal information to others without their consent, such as psychological or personality traits. Similar to their worries about drones, they were also concerned about the likelihood that personal information about them will be gathered by other people's robots. (Felzmann, H., and others, 2015).

Three Gabriel Hall Models of AI and Legal Liability

AI lacks human characteristics, it is impossible for AI to be the culprit behind any wrongdoing. It is associated with mentally impaired individuals, such as children, mentally incompetent individuals, or those without a criminal mindset. The AI entity is an innocent agent that serves as a tool for the real offender, who plans the crime and is the true mastermind behind it. Because of this, the person who created the AI is responsible for its actions (actus reus), even though the subjective or internal component (mens rea) is decided by the perpetrator via the mental state of another.

According to this model, artificial intelligence cannot act on its own and must be controlled by a programmer or user. This approach presumes that the user or programmer has intention.



Possible-Natural Consequence Model of Liability

The second model assumes that if the offense is a natural and likely result of the AI's action, the programmer or user of the AI entity may be held liable for the crime committed by the AI, even though they did not develop or use it with the intention of committing a specific crime. If there is evidence that the programmer or user could and should have foreseen the potential commission of offenses, they may still face criminal charges even though they did not plan to commit any offenses, were unaware that the offense had been committed until it was already done, and did not participate in the commission of the offense. The second model, in contrast to the first, does not call for the Grammar or user to have any illegal intent. It suggests holding programmers and users liable for foreseeable crimes that emerge from a lack of due diligence (i.e., crimes caused by negligent use of AI entities).

The Third Model of the Direct culpability Model seeks to give a theoretical foundation for a functional equivalency between AI entities and humans for the purposes of criminal culpability. Gabriel Hallevy's logic is based on the notion that criminal responsibility is only associated with the satisfaction of two distinct needs: mens rea (an internal element) and actus reus (an external factor). If AI entities were able to satisfy both of these requirements, criminal accountability would ensue.

III. LEGAL LIABILITY

In order to use the third model, AI and robots must be acknowledged as distinct legal entities. Sophia, a humanoid robot, was recently granted legal personality by Saudi Arabia, marking the beginning of this procedure. When states all over the world decide to recognize humanoid robots as legal persons, as Saudi Arabia has done, this approach will be extremely important.

Legal responsibility

Regarding AI systems' culpability for careless acts, the majority of global countries have implemented the concept of "strict product liability." Additionally, the Indian judiciary has acknowledged the stringent product liability theory. Legal entities, both artificial (such as businesses) and natural (such as individuals), are endowed with rights and obligations. Robots or machines cannot be held responsible in their own right since they are not yet recognized as natural or legal people in India (United States v. Athlone Indus., Inc., 746 F.2d 977, 979 (3rd Cir. 1984)).

IV. CONCLUSION

Despite the fact that robots currently play a small part in the healthcare industry, studies and advancements in robotics suggest that their use will probably grow in the near future. Robotic healthcare—from diagnosis to recovery/rehabilitation—will soon be a reality because to rapid technological breakthroughs. Healthcare robots have the potential to cause serious physical harm, and in rare cases, such as when a program malfunctions, they may even kill the patient. Regretfully, current laws are unclear about who is responsible in certain situations, especially in nations like India. As a result, the courts must use the same reasoning in criminal cases as they do in corporate fraud cases and in civil cases as they do under the strict product liability and vicarious liability doctrines. The use of Gabriel Hallevy's models in conjunction with the above mentioned recommendations could serve as a paradigm for future laws pertaining to AI entity responsibility.

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