More than 70 years ago, Isaac Asimov philosophized in short stories about how the world looks like when machines with artificial intelligence live with us. Which rules do robots need to act ethically. He proposed the three Laws of Robotics [1]:

1. A robot may not injure a human being, or, through inaction, allow a human being to come to harm.
2. A robot must obey orders given it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

Although the three laws are formulated clearly and unambiguously, Asimov demonstrated their shortcomings in many of his short stories. Basing on Asimov's stories, the science fiction movie "I, Robot" was published ten years ago. In the movie, a robot had to choose to rescue one of two people from drowning: Save the child with a lower probability of survival or the father with a higher probability of survival?

How timely this topic is, shows the work of Patrick Lin [2]: How should an autonomously controlled automobile like the Google Driverless Car decide in the case of an unpreventable accident? Damage an expensive SUV, a cheaper small car or risk the life of a pedestrian?

Until now, such cases were decided either intentionally by the driver, or by chance or fate. Individual decision of the driver, limited by his reaction time. IT was fate. Now the fate will be predictable and controllable by the possibilities of technology. The developers and programming can and must decide what type of damage to prefer. Asimov's questions about the ethical responsibility and liability will be more relevant than ever.

Doing Right or Doing the Right?

According to the technical development in medicine, we have to ask the same questions in the near future: Shall surgical robots or closed loop anesthesia systems protect the life of the one or the other twin in fetal surgery?

Although robots that traverse hitch-hiking Canada (#hitchBOT) or entrance exams to universities (#Torobokun) there are still more hype than reality: We must now think about possible technical developments and their options of usage in medicine to find the answers to the ethical, legal and socio-technical implications in time. iRobot, MD will be reality. Therefore, you are invited to discuss ideas and visions on the use of robots and autonomous systems in medicine on Facebook.

References

1. Asimov I. Runaround.: Astounding Science Fiction; 1942.