TECHNOLOGY·ORG

AI to help work through the backlog of surgeries, caused by COVID-19 pandemic

Posted 6 days ago

Like 3

+ Share

COVID-19 hit the hospitals hard. All other diseases didn't suddenly disappear, but hospitals became hotspots for COVID-19 spread. And so many selective surgeries were postponed, which created a huge backlog. How will hospitals clear it?

Scientists at the University of Waterloo believe that artificial intelligence can help by ensuring the most efficient use of operating rooms.

After COVID-19 pandemic dies down, operating rooms are going to be incredibly busy working through the backlog of postponed surgeries. Image credit: Memocolucci via Wikimedia (CC BY-SA 3.0)

TECHNOLOGY●ORG

MENU

For example, it is estimated that between March 15 and June 13, there was a provincial backlog of 148,364 surgeries in Ontario, Canada, alone. This backlog will have to be cleared, but how?

Resources are limited and we need to use them efficiently. Scientists at the University of Waterloo created an artificial intelligence model to optimize the efficiency of operating room booking times. At the moment surgeons are using the average time of their last 10 cases as the booking time for future procedures. The idea here is simple – if the previous surgery took this long, the upcoming one should take around the same amount of time. However, in reality this practice results in about 50% of cases running overtime. Some other cases finish early and operating rooms are underutilized. Scientists wanted to see if artificial intelligence could help.

Researchers used machine learning to analyze 36 months of anonymized operating room historical or booking data from 2017 to 2019. This datapool included 10, 553 cases, which allowed the algorithm to determine the time required for each operating procedure. Essentially, this solution predicts the time needed for each operation, which could improve the efficient use of operating rooms. Natasha Rozario, author of the study, said: "Our machine learning algorithm proved to be a lot more effective at minimizing overtime frequency, so the rate at which operating rooms are going over the scheduled time. This means that more operations can be conducted, and there is a better estimation of how long cases are going to take and how many patients you can see in a day."

AI solution would enable a 40% increase in the frequency of the running on time of operating rooms. At the same time, these models could reduce the nursing overtime by 21 %. Finally, scientists say that this method would result in reduced costs for hospitals as well.

COVID-19 is a terrible pandemic, which will continue for months more. However, we can hope that the lessons we've learned will help us through the future pandemics, which are inevitably going to happen.

Source: University of Waterloo

RELATED LINKS: