

Netflix-Style Algorithm for Blueprint of Cancer



A team of scientists have used artificial intelligence (AI) to develop a Netflix-style algorithm to investigate and categorise DNA changes across the cancer genome. The paper, titled “Signatures of copy number alterations in human cancer”, is published in *Nature*.

They identify 21 common faults that occur to the structure, order and number of DNA copies present when cancer starts and grows. These faults are called copy number signatures and can guide doctors to treatments that reflect the characteristics of the tumour.

The scientists use a Netflix-like algorithm to sift through thousands of lines of genomic data and pick out common patterns in how the chromosomes organise and arrange themselves. Then, the algorithm categorises the patterns to establish the types of faults that can occur in cancer. Based on this algorithm, the team has identified 21 common faults to the structure and number of chromosomes in tumours and categorised them into different genres. These genres can be used to create a blueprint to assess how aggressive the cancer will be, its weak spots and possible new treatments.

This is similar to how Netflix uses data based on the type of films and TV series people watch, how frequently they watch them and whether they give these movies and shows a thumbs up or thumbs down. The Netflix algorithm analyses this data to identify patterns in the content people watch. Based on these patterns, it recommends new films and TV series when subscribers scroll through their Netflix.

Cancer is a complex disease, but there may be similarities in the changes to chromosomes that can help clinicians understand how the cancer starts and changes. Hence, just as Netflix can predict which show a particular subscriber is likely to binge-watch, this algorithm can predict how a patient's cancer will likely behave based on the changes its genome has previously experienced. This is critical to stay one step ahead of the cancer and anticipate how it might adapt and change.

Source: [Cancer Research UK](#)

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