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Scientists develop smart search app for COVID-19 literature

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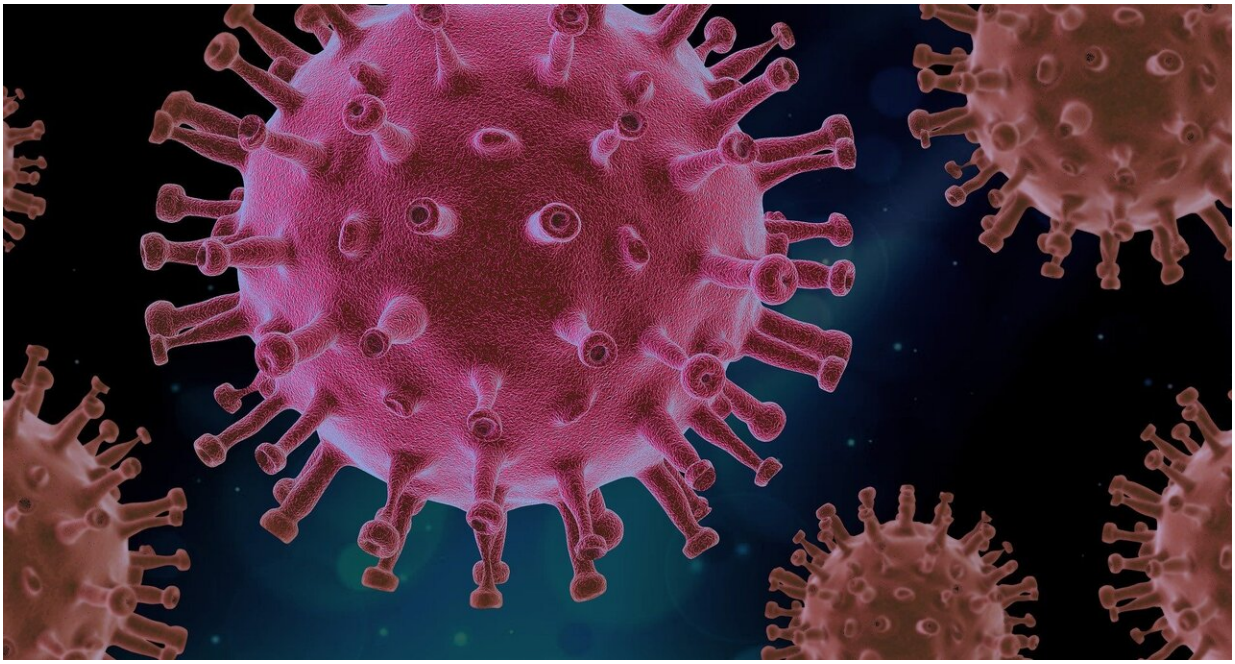

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Scientists all over the world have been racing to find answers since the onset of the deadly coronavirus pandemic. Seemingly overnight, a diverse array of the world's top researchers shifted their focus to the study of COVID-19, leading to a constant stream of new pre-print articles.

Now, University of Toronto scientists have developed a tool called CiteNet to help fellow researchers efficiently find, survey and review this new literature.

More than 2000 COVID19-referencing pre-prints—completed studies awaiting peer review and journal publication—have appeared since China announced the outbreak in January, with 375 articles published last week alone.

"We wanted to come up with something more intuitive that allows you to explore literature and see what's out there," says Duncan Forster, a graduate student co-supervised by Charlie Boone and Gary Bader, both professors of molecular genetics at the Donnelly Centre for Cellular and Biomolecular Research, who co-developed CiteNet with fellow graduate student John Giorgi and in collaboration with Bo Wang, Assistant Professor at the Vector Institute for Artificial Intelligence and Department of Medical Biophysics.

"If you find a paper that you think is interesting, CiteNet can help you find others like it," says Forster.

CiteNet indexes papers from the pre-print servers BioRxiv and MedRxiv (pronounced as "bio-archive" and "med-archive"), where most COVID-19 papers appear before publication. But instead of a needle-in-a-haystack approach of keyword searches employed by most academic search engines, CiteNet uses algorithms to intelligently gather literature related to COVID-19 and sort it based on defined search criteria.

"Using advances in natural language processing, CiteNet scans papers for semantic similarities and ranks them based on their likely relevance to the query papers," says Wang, who is also lead artificial intelligence scientist at the Peter Munk Cardiac Centre and the Techna Institute at University Health Network.

CiteNet is still in the development phase, but due to the COVID-19 pandemic, Forster and Giorgi have made the demo version of the tool available to the public. They have also created and posted a CiteNet video tutorial to illustrate how to use the app.

"We hope CiteNet will be a useful, up-to-date tool for all members of the scientific community looking to find answers in the global fight against COVID-19," Wang says.

Provided by University of Toronto

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