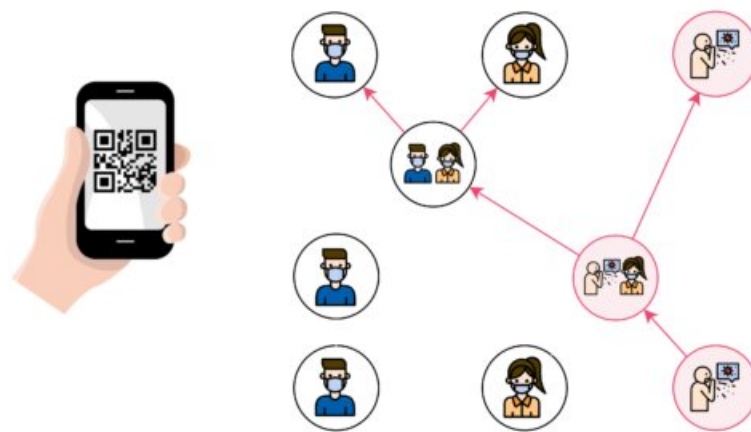


UCI team develops smartphone application for coronavirus contact tracing

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The TrackCOVID smartphone application, developed by UCI researchers, works by allowing users to log their interactions anonymously, making it easier to trace when and where people may have come in contact with someone carrying the COVID-19 virus. Tyler Yasaka, Brandon Lehigh and Ronald Sahyouni / UCI

On Tuesday, California Gov. Gavin Newsom suggested that reopening the state's economy will require six steps, the first of which involves "tracing and tracking individuals" in order to identify those who need to remain in isolation.

Researchers at the University of California, Irvine have developed a tool

that could be instrumental in this effort. TrackCOVID is a free, open-source smartphone application that permits [contact tracing](#) for potential coronavirus infections while preserving privacy.

The team's project is detailed in a paper published recently in *JMIR mHealth and uHealth*.

"Contact tracing is the process of tracking down and isolating people who may have been exposed to an infectious disease after someone has tested positive," said lead author Tyler Yasaka, a [software engineer](#) and junior specialist in otolaryngology at the UCI School of Medicine. "This process has traditionally been slow and inefficient, and current technology-based solutions have [privacy concerns](#) because they require continuous tracking of everyone's location."

TrackCOVID works in a different way, he said, by creating an anonymous graph of interactions. Every time a person gathers with others or goes to a [public place](#), he or she can use the app to log contacts by either hosting or joining a checkpoint, which allows possible paths of virus transmission to be discovered. The first person to register as a checkpoint host is given a Quick Response code; others subsequently join the checkpoint by scanning this QR code.

As people congregate with others over time, their interactions are linked to each other anonymously. Anyone who tests positive for COVID-19 can report it through the app without revealing his or her identity. Using the graph of interactions, the app will notify users who may be at elevated risk of exposure.

"We built a simplified simulation model that showed the app is more effective—that it flattens the curve of infections—when more people use it," said co-author Dr. Ronald Sahyouni, a biomedical engineer in UCI's joint M.D./Ph.D. Medical Scientist Training Program and an

incoming neurosurgery resident at UC San Diego.

How could this be encouraged? Co-author Brandon Lehigh, who earned a B.S. in [biomedical engineering](#) at UCI in 2018, suggested that endorsement by local, state and national government entities would be beneficial—as would enlisting the help of grocery stores and other "essential" gathering places.

The establishments could post signs displaying their QR code, which visitors could scan with their smartphones. TrackCOVID would open automatically in their device browsers, and they'd be anonymously checked into that specific location.

"If the customer happens to be at an elevated risk level, they'll see an alert on their screen," Lehigh said. "If enough public places are doing this, then a lot of contact tracing will happen without any users making a conscious effort other than scanning a QR code when they go shopping. From there, I think people will start to see the value of the app and begin using it to create checkpoints for their private interactions as well."

Yasaka added, "We hope our app goes viral before too many more people come in contact with the more dangerous virus."

More information: Tyler M Yasaka et al, Peer-to-Peer Contact Tracing: Development of a Privacy-Preserving Smartphone App, *JMIR mHealth and uHealth* (2020). [DOI: 10.2196/18936](https://doi.org/10.2196/18936)

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