



# CoviDB

CoviDB Speaker Series on COVID-19

## Security and Privacy in the Era of COVID-19

*A Guide for Teachers and Students*

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Featured Speaker:  
**Shuman Ghosemajumder**  
Global Head of AI at F5 Networks  
Former Google click fraud czar



Hosted By:  
**Bernadette Clavier**  
Director of the Center for Social Innovation at  
the Stanford Graduate School of Business

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**Shuman Ghosemajumder** is Global Head of AI at F5 (NASDAQ: FFIV). He was previously CTO of Shape Security (acquired by F5 in 2020), where he was responsible for product, research, and engineering, leading the development of the AI platform and services which protect the largest U.S. banks, airlines, and government agencies against sophisticated cyberattacks. Prior to Shape, he worked at Google from 2003–2010, where he founded and led product management for Trust & Safety, co-founded the Privacy Council, and helped launch Gmail.

**Bernadette Clavier** is the Director of the Center for Social Innovation at the Stanford Graduate School of Business which educates insightful leaders for social and environmental change. Committed to entrepreneurial innovation and sustainable practices, Bernadette Clavier put 10 years of marketing leadership experience creating category winners in the private sector to the service of higher education programs that seek to advance solutions to the world's global problems. During her time in academia, she led the design, launch, and growth of a social enterprise incubation program, an impact investing fund, a mentorship program, traditional classroom curriculum, as well as a certification, an internship, and multiple fellowship programs. She has explored multiple avenues to social progress including nonprofit leadership, philanthropy, impact investing, and responsible business. She has coached numerous students to find their personal path to impact and social entrepreneurs to launch successful ventures.

The purpose of this guide is (1) to provide information to review prior to the viewing of the interview; (2) to suggest guiding questions to consider while viewing the interview; and (3) to recommend debriefing activities.

## Information to review prior to the viewing of the interview

This interview introduces “Security and Privacy in the Era of COVID-19” and focuses on five topics. For teachers’ information, each topic is listed below with a summary of the main questions asked by Bernadette Clavier. During the interview, important terminology is used. A list of the terms and definitions is included on the next two pages. A review of the terms and definitions is recommended prior to the viewing of the interview.

**Topic 1: Contact Tracing and Introductory Context**—What are the various strategies available to humanity to address a pandemic? At what stages of the pandemic are those most relevant and effective? And why?

**Topic 2: Understanding the Technology**—If I wanted to take part in contact tracing, and get some alerts on my phone when I’ve been exposed to the virus, how would I do this? Let’s say I’m participating in a program like this, how efficient would this be? What are the chances the information that’s coming to me is real? How seriously do I need to take it? What are the chances of false positives?

**Topic 3: Privacy Implications of Contact Tracing**—What could happen if I give up my data for contact tracing? Who could see it? What could they do with it? What would they know about me? What are my risks? There are countries that have started using contact tracing quite successfully, like in South Korea for example, and yet here in the U.S., we’re yet to deploy a full program like this. Why do you think that is?

**Topic 4: Dangers & Cybersecurity, re: COVID-19**—Beyond contact tracing, COVID-19 has made it so that we’re spending the entire day on a screen and online. Things happen, like Zoom-bombing. Why is that? What are new risks that we are taking by spending our entire days online?

**Topic 5: Predictions: Technology & COVID-19 in the Future**—What would be your advice for tech companies, but also companies using tech as a focus, in the next few months and also the next several years?

## Definitions

**Augmented reality (AR)**—a technology that superimposes a computer-generated image on a user's view of the real world, thus providing a composite view

**Bluetooth**—a standard for the short-range wireless interconnection of mobile phones, computers, and other electronic devices

**Contact tracing**—part of the process of supporting patients and warning contacts of exposure in order to stop chains of transmission

**Coronavirus disease 2019 (COVID-19)**—an infectious disease caused by severe acute respiratory syndrome coronavirus (SARS-Cov-2). "CO" stands for "corona," "VI" for "virus," and "D" for "disease." Sometimes referred to as the novel (new) coronavirus.

**Cybercriminal**—a person who engages in criminal activity by means of computers or the Internet

**Data privacy**—Data privacy or information privacy is the aspect of information technology that deals with the ability an organization or individual has to determine what data in a computer system can be shared with third parties.

**Encryption**—the method by which information is converted into secret code that hides the information's true meaning from anyone who intercepts the code; *decryption* allows only the intended receiver of the code to retrieve the original meaning

**False negative**—a test result which incorrectly indicates that a particular condition or attribute is absent

**False positive**—a test result which incorrectly indicates that a particular condition or attribute is present

**Global positioning system (GPS)**—a system of satellites, computers, and receivers that is able to determine the latitude and longitude of a receiver on Earth by calculating the time difference for signals from different satellites to reach the receiver

**Phishing**—the fraudulent practice of sending emails purporting to be from reputable companies in order to induce individuals to reveal personal information, such as passwords and credit card numbers

**Scam**—a dishonest scheme; a fraud, typically to steal money from individuals through a sequence of deceitful steps or interactions

**Technology adoption**—the acceptance, integration, and use of new technology in society

**Telecommunications network**—electronic system of links and switches, and the controls that govern their operation, that allows for data transfer and exchange among multiple users

**Virtual reality (VR)**—the computer-generated simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves fitted with sensors

**Zoom-bombing**—the unwanted intrusion into a video conference call by an individual, causing disruption

## Guiding questions to consider while viewing the interview

For teachers who share this interview with a class, consider dividing the class into five small groups and distributing one set of questions (below) to each group.

**Topic 1**—How is technology being used in the context of the COVID-19 pandemic? What roles does technology play in different stages of COVID-19 spreading? What is contact tracing? What is the best time to have contact tracing technology?

**Topic 2**—What are some of the options concerning contact tracing technology, including apps? What are some of the concerns about this technology? What are some of the differences with how apps for contact tracing work? What are some benefits and drawbacks of governmental control of contact tracing? Why are privacy protecting technologies important in terms of contact tracing apps? Why is it important to consider false positives and false negatives in the analysis of data sets concerning pandemics like COVID-19? Why are COVID-19 tests important?

**Topic 3**—How can the analysis of data sets of COVID-19 help with addressing the pandemic? Why are the mechanisms that various contact tracing apps have put in place important? What is the significance of regional differences in attitudes towards privacy issues and complexities with technology infrastructure? What is the significance of the adoption of an app in terms of a contact tracing perspective?

**Topic 4**—How have COVID-19 and sheltering-in-place affected our society especially from a technology perspective? How has the reliance on video conferencing exposed gaps in the ways in which those technologies have been implemented? What are some other concerns that have come about as a result of working from home using technology to communicate?

**Topic 5**—What might companies do differently (or are already doing) as a result of sheltering-in-place and increased remote working? What are they placing importance upon? How has this impacted areas like productivity, which were traditionally measured by people actually coming to the workplace?

## Recommended debriefing activities

1. Following the viewing of the interview, have each small group (from section 2) discuss the set of questions that the group was assigned. Have one student from each group present a summary of its discussion to the class.
2. Shuman defines contact tracing (in the context of COVID-19) as the identification of where people—who have been determined to be COVID-19 positive—have been and also who else they might have been in contact with. He gives the example of contact tracing in Israel. South Korea is also mentioned in the interview. Write a report about Israel, South Korea, or another country that does COVID-19 contact tracing. What have been the successes, failures, and challenges?  
<https://ourworldindata.org/grapher/covid-contact-tracing>
3. During the interview, Bernadette provides the following summary:
  - Contact tracing can be implemented in controlled ways to limit how bad actors might use our information against us.
  - It would still require an incredible amount of trust in public authorities to ensure that we can be confident that our safety in the future is preserved.
  - The situation has opened up a lot of new opportunities for cybercriminals.Write an op-ed about these issues in the context of your current situation as a student and/or employee.
4. Bernadette closes by saying that “It’s been really interesting to get a glimpse at maybe the dark side of human nature and what it’s capable of, but also at the incredible potential of innovation in this moment.” Develop a political cartoon that captures the essence of this quote.
5. If you could design a contact tracing app for future pandemics, what would its capabilities be and why would you include them?