Testing for COVID-19: From Modeling to Practice

In the first, modeling, part of this work I will discuss the tradeoff between accuracy and availability of tests and show how the accuracy of a test in detecting the underlying state affects the demand for the information product differentially across heterogeneous agents. Correspondingly, the test accuracy can serve as a rationing device to ensure that the limited supply of information products is appropriately allocated to the heterogeneous agents. When test availability is low and the social planner is unable to allocate tests in a targeted manner to the agents, we find that moderately good tests can outperform perfect tests in terms of social outcome.

In the second part of the talk, I will discuss the work that we recently completed with screening travelers at the Greek Border. From July 1st to November 1st we designed, implemented and deployed an online learning system to allocate the country’s limited testing resources on the incoming tourist population. Specifically, for each of the 40 points of entry and given the daily number of tests available, we use travelers’ characteristics to decide who to test. Using this approach, we essentially double the effectiveness of testing resources and provide early warnings for outbreaks around the world.