



CASUS Institute Seminar



Bayesian Forecasting of COVID-19

Dan Sheldon

Date: Tuesday, 03 November 2020

Time: 14:00 – 15:00 CET

Location: CASUS Lecture Room, Görlitz

Abstract:

COVID-19 has infected more than 41 million people worldwide.

COVID-19 models can help provide “situational awareness” of disease prevalence and make short-term forecasts to provide actionable information to public health planners. In early March 2019, I was on sabbatical catching up on computer science research projects. In late March, I connected with my friend Nick Reich, who leads a team of infectious disease forecasters at UMass. Since then I have led a small team developing the “MechBayes” (Mechanistic Bayesian) COVID-19 forecast model using tools from computer science and statistics. We submit weekly forecasts to the COVID-19 Forecast Hub, which are then provided to the US Centers for Disease Control and Prevention and used in an ensemble forecast. Our model is one of several featured on the FiveThirtyEight website.

In this talk, I will provide an overview of how we combined classical epidemiology models with modern probabilistic programming to create these forecasts. I will also describe the broader efforts of the COVID-19 Forecast Hub to standardize, collect, and aggregate forecasts by building ensemble models.

Bio:

Dan Sheldon is an associate professor in the College of Information and Computer Sciences at the University of Massachusetts Amherst and the Department of Computer Science at Mount Holyoke College. His research investigates fundamental problems in machine learning and applied algorithms motivated by large-scale environmental data, dynamic ecological processes, and real-world network phenomena (and now epidemiology).