

**Title:** AI for Social Impact — Learnings from Tuberculosis Elimination Program in India

**Speaker:** Prof. Jithin K. Sreedharan

**Date:** Wednesday, 10<sup>th</sup> August, 2020

**Time:** 6 PM

**Venue:** L18

**Abstract:**

This talk is about the learnings from leading two ML teams in my previous position on a challenging behavioral prediction problem and a cough-based triaging solution in Tuberculosis (TB)-infected patients. The projects were conducted in partnership with the Ministry of Health and Family Welfare and Central TB Division, Govt. of India. The solutions are ready to be deployed country-wide in the next few months in public hospitals as part of the National Tuberculosis Elimination Program.

Nearly 10 million people fell ill with TB in 2020, and 1.4 million died out of it. India accounts for around one-third of TB cases and one-fourth of TB-related deaths globally. These figures continued to increase in the last two years since most medical attention was diverted to COVID treatment. Adherence to treatment regimens is critical for TB patients since non-adherence can lead to drug-resistant TB and mortality, and the patient continues to be a risk to the community. The first ML solution we provided was to predict the adherence of TB patients to the treatment regimen with ML techniques. The second one predicted TB cases from the cough signals collected from patients. Our high sensitivity AI-based solutions thus act as a screening solution before doing expensive and time-consuming TB lab tests. We will discuss the data preparation, ML models, and evaluation strategies.

**Bio:**

Jithin K. Sreedharan is an Assistant Professor at the Computer Science and Engineering Department, IIT Kanpur. Before joining IIT Kanpur, he worked as an ML Scientist at Wadhvani AI — AI for Social Impact, funded by and partnered with Google.org, Bill and Melinda Gates Foundation, USAID, and WHO. Previously he was an NSF postdoctoral research associate at the Center for Science of Information and Dept. of Computer Science at Purdue University. He received his Ph.D. from INRIA, France, with a fellowship from INRIA-Bell Labs joint lab, and M.S. from Indian Institute of Science (IISc) Bangalore with the best masters thesis award. His current works focus on data mining algorithms for large networks with probabilistic guarantees, graph representation learning, and AI for Social Good applications. His results have been presented at various venues, including ICML, The Web Conference (WWW), SIGKDD, SIGMETRICS, and INFOCOM.