Responsible AI at Scale

As the famous saying goes, with great power comes great responsibility. While the superior performance and broad applicability of ML and TinyML have the potential to empower individuals and generate positive social impact, this can only be achieved if the developers use the technology responsibly. Only by grounding our work in responsible AI throughout the development and deployment of a project, can our scaled deployments of ML and TinyML applications go on to enact positive change in the world.

Responsible AI is an all-encompassing term that means a variety of different things, such as holding developers accountable, providing model transparency while maintaining individual privacy, and facilitating sustainable development and social impact to the best of our ability. While for some applications, some of these factors may not be as applicable, keeping these factors in mind is a good first step. Some criteria for social impact and sustainable development can be found in the United Nations 17 Sustainable Development Goals.

Responsible AI has been born out of the growing concern amongst the computer science and data science community in recent years that the use of large amounts of user data meant that these fields of expertise might now have profound impacts beyond their specific applications and analysis, but were virtually unrestricted in ethical terms. In fact, it is only in the past few years that ethics has become a part of computer science and data science curriculums at universities. This, coupled with the increasingly profound environmental impact of ML, and the growing use of “black box” models, means that people are becoming acutely aware of the potential dangers and negative impacts of ML. As such, moving forward, designing applications responsibly will help to maximize the possibility that our work results in a positive change in the world.

To this end, in this module we will survey a few key concepts of responsible AI that you need to consider when scaling machine learning deployments:

1. Sustainable AI at Scale
2. Transparency in ML Models
3. The Opportunities for Social Impact

To learn more about these topics, I’ve asked my good friend and colleague Susan Kennedy, who is a philosopher, to come and share a few thoughts with us. Susan is an expert in ethics, applied ethics, and social/political philosophy, with a particular focus on emerging technologies. She will help us understand what sustainability and transparency mean in terms of ML.

Responsible AI is a huge field, there could be an entire course on that itself. So the objective here is not to give you a complete overview of Responsible AI, rather we want to get you thinking about it as part of MLOps.