

## **Data Science and AI in drug development– challenges and case studies from AstraZeneca**

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**Artificial Intelligence** (AI) is a very broad term, originally defined by Allan Turing in the early 1950's as "a machine that can perform tasks commonly being performed by intelligent beings". AI is about the ability to reason, discover meaning, generalize, or learn from past experience. In the pharma industry we have for long time used computer models to learn from small datasets to predict what to do next in designing new active molecules, so called **Machine Learning** (ML) models. We have used advanced statistical analysis methods to interpret outcome from clinical trials and pre-clinical testing. The advances of compute power, algorithm and access to large datasets has started a new wave of interest to the field of AI.

In this talk I will review the external trends in AI/ML and how they have been adopted to the pharma industry. I will show a few use cases from AstraZeneca on how we have used AI and ML to accelerate our discovery and development programs. I will also discuss the challenges we have in creating the datasets needed for efficient implementation of AI empowered tools. I will also describe how we in Sweden have created a cross different industries, academia and the healthcare providers echo system for AI called "AI Innovation of Sweden" aimed to cross-fertilize and increase innovation in the AI space.