Personalized Medicine: Redefining Cancer Treatment

Abstract:

A lot has been said during the past several years about how precision medicine and, more concretely, how genetic testing is going to disrupt the way diseases like cancer are treated.

Once sequenced, a cancer tumor can have thousands of genetic mutations so the challenge is distinguishing the mutations that contribute to tumor growth (drivers) from the neutral mutations (passengers).

This is not a trivial task since interpreting clinical evidence is very challenging even for human specialists because the genetic mutations differ from a person to another and not every medicine that cures a certain kind of cancer doesn’t necessarily have to fit other patients.
**How does the process go:**

Currently this interpretation of genetic mutations is being done manually. This is a very time-consuming task where a clinical pathologist has to manually review and classify every single genetic mutation based on evidence from text-based clinical literature.

**The goal:**

Through some techniques we are trying to develop a Machine Learning algorithm that uses clinical evidence as knowledge base as a baseline, automatically classifies genetic variations.

**The skills needed:**

*Base knowledge about*

1) AI

2) Programming languages (Python, R)

3) Practical Machine learning & deep learning

4) Big data and SQL (database)

5) Statistical inference