



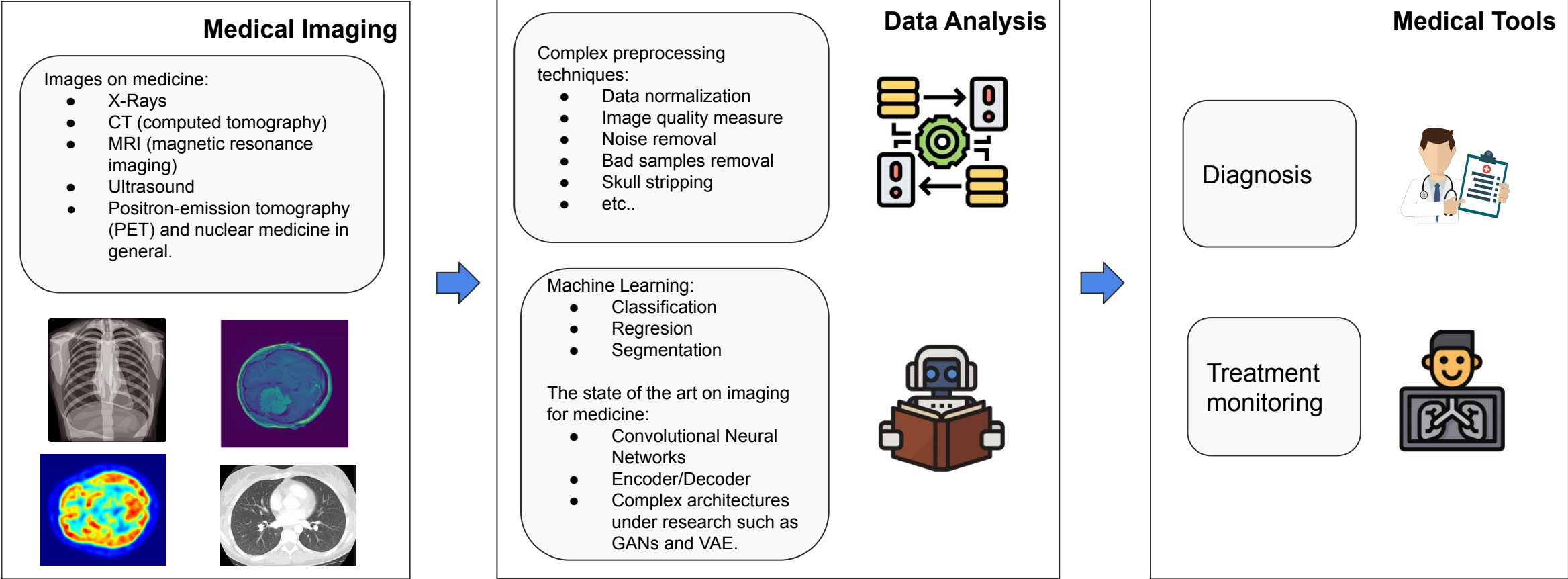
# Medical Imaging and Machine Learning

Omar Zapata on behalf of KT and EP-SFT

15/10/2021

# Overview

## Imaging plays an important role in medicine



# Imaging R&D for medicine

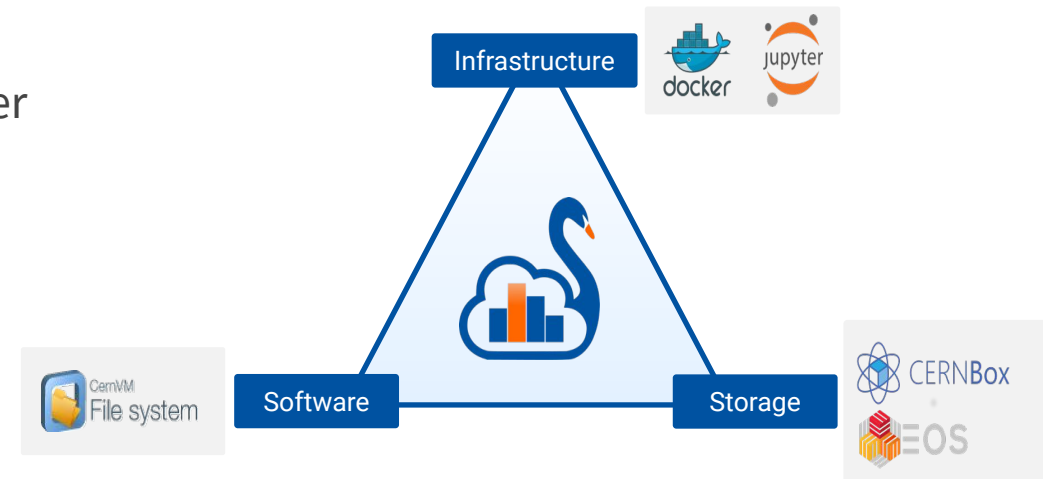
There is a lot of ongoing research on medical imaging in the world.

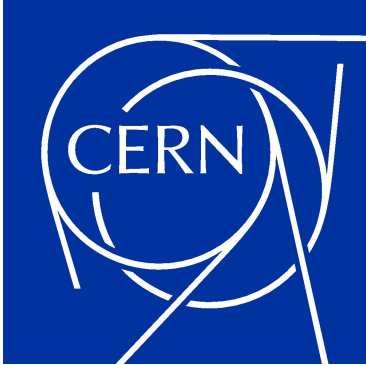
- **Machine learning is becoming more and more popular in the medical area.**
- **Data is always something painful get.**
  - No always open data is available.
  - Create a dataset requires effort from experts in different areas such as radiologists, oncologists, epidemiologist etc..
  - Agreements are required.
- **Clinical studies are required for validation of the tools.**
  - Approval of medical and ethics committees in the hospital to perform the study.
  - The study has to be done by doctors, not by developers.
  - The idea is to get the metrics of performance of the tool on real patients.
- **No all have to be done from scratch, we can use algorithms reported in the literature and modified it for our needs.**
- **Medical imaging is a complex and high-impact area for R&D, which is why we love it!**

# SWAN

**SWAN (Service for Web based ANalysis) is a platform to perform interactive data analysis in the cloud.**

- > Analyse data **without the need to install any software**
- > Jupyter notebook interface as well as shell access from the browser
- > Use CERNBox as your **home directory** and **synchronise** your local user storage with the cloud
- > Access **experiments' and user data** in the CERN cloud (EOS)
- > **Share your work** with your colleagues thanks to CERNBox
- > **Document and preserve science** - create catalogues of analyses: encourage reproducible studies and learning by example
- > Run your jobs to **CERN Spark Clusters or GPU accelerators**





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