Application of AI in medical imaging during pandemic

Mohammad Ghazi
1. The impact of pandemic on the adoption of AI Applications
2. Artificial Intelligence and Deep Learning in image analysis
3. Artificial Intelligence at image acquisition
4. Summary
Few months back.....

The Man Vs. Machine?

Should radiologists embrace AI technologies?

Benefits of AI Applications!
The pandemic has changed the way healthcare providers act....

Computed Tomography in COVID-19 Diagnosis

- High Sensitivity (91%-97%)**
- Significant role in triage & support RT-PCR, severity & progression assessment.

Demand vs. Supply of consultant radiologists (WTE) from 2014 to 2023:
- Demand: 3,048 in 2014, 3,622 in 2018, 4,726 in 2023
- Supply: 3,467 in 2014, 4,118 in 2023

Shortfall: 1,867 (31%)

CDC/ Alissa Eckert, MS; Dan Higgins, MAM - This media comes from the Centers for Disease Control and Prevention's Public Health Image Library (PHIL), with identification number #23312.
AI-Rad, seamlessly integrated into hospital environment – and radiology workflow
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AI-powered AI-Rad

Mohammad Ghazi
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AI Generated Structured Report
“When radiologists create a report, there is a variability of about ten to 20 percent depending on the examiner.

In an algorithm-based diagnosis, this variability is completely eliminated and the results are very consistent.”

Dr. Bram Stieltjes
Head of Radiology Research and Head of IT Research, University Hospital Basel, Switzerland
Pre-Requests

Large amount of labeled data

Super Computing Power

Verification and Quality Check
Deep Learning for Algorithm Development

Non-Contrast Chest CT & Radiology Reports

AI system Trained on large volume of images

Abnormality Detection

Data courtesy of Multiple front line hospitals

Improved Chest CT analysis Detection on Non-Contrast Chest CT Using Artificial Intelligence

The system is currently released as prototype and is not for sale.
Summary

1. The Pandemic has speeded up the adoption of AI applications in radiology imaging
2. AI helps to deal with the growing demand of Radiology imaging
3. AI helps standardize the quality of reporting
4. AI supports in image acquisition making it more accurate and reduce un-wanted variations
Thank You!

I wish you all stay safe and healthy