[SORSE] Reaching Maturity for Research Software: Two Use Cases

Report of Contributions

Contribution ID: 1

Type: not specified

Bringing Imaging-Based Artificial Intelligence into Clinical Practice in NHS Radiology

Monday, December 7, 2020 2:00 PM (30 minutes)

Whilst there are over 200 Imaging/Radiology AI Companies world wide there are currently only about 50 FDA approved algorithms.

There are also significant barriers to overcome in bringing AI to the NHS landscape. In Bolton NHS Foundation Trust we are the first NHS Organisation to deploy the Qure.AI solution into clinical practice.

In this talk we will dissect some of the barriers – real and perceptual – which has to date limited the use of AI in clinical practice in the NHS and how we overcame these based on our lived experience. Of relevance to the software engineer audience this will include some disconnects between AI in the lab and clinical deployment.

With testing turnaround times of more than 24 hours clinicians used chest radiography as the primary diagnostic tool to assess and triage COVID-19 patients. The introduction of Artificial Intelligence (AI) algorithms to radiology in Bolton resulted in a much faster and more accurate patient diagnosis. It showed quickly if someone's condition was worsening, improving or staying the same. This led to a more efficient triaging and care of patients and optimised use of critical care resources. The AI tool also mitigated challenges presented by the loss of medical staff due to illness, self-isolation or shielding.

Our vision was to give clinicians 24/7 access to an accurate and consistent decision support tool to improve chest x-ray interpretation allowing them to make quicker and better-informed decisions about patient care.

We carried out extensive research before partnering with Qure.ai and this contributed to the NHSx guidance and guidance by GOV.UK.

Presenter: MALIK, Rizwan (Bolton NHS Foundation Trust)

Session Classification: Talks

Contribution ID: 2

Type: not specified

From experimental software to research infrastructure maturity

Monday, December 7, 2020 2:30 PM (30 minutes)

The challenges facing research software development are manifold and have long been a major topic at RSE conferences.

In the context of the covid-19 pandemic, debates about the use or rather re-use of research software for real word applications – with life-or-death implications – have occurred in broader contexts than RSE conferences. The discussions confirm what has long been known: sustaining software for long term use requires continued commitment and investment in quality and practices, see e.g. Report on the Workshop on Sustainable Software Sustainability 2019 (WOSSS19).

With the European Commission's plan for a European Open Science Cloud (EOSC), foundations are being laid to build an ecosystem to enable digital research. One of the core requirements for offering a service in EOSC will be its technical maturity – it must reach an 8 on the 9-step Technology Readiness Level scale, designed by NASA to assess its technology's space readiness.

In this talk I will explain what we at CESSDA, the Consortium of European Social Science Data Archives, do to ensure our technology is designed to build services that meet these maturity requirements. Starting from guidelines and agreement on best practices, automation plays an important role for quality analysis and testing and also provides evidence of this. Investing in the long term objective of sustainability for our cloud native infrastructure plays a fundamental part. At the core, we define repeated software releases – not just one-off demonstrators – with strict quality requirements as the fundamental deliverables that we can later turn into mature services we can reliably provide to our users.

We will show how our model can serve as a blueprint for EOSC and for moving from experimental code to infrastructure that is mature enough to serve its purpose in times of crisis.

Presenter: THIEL, Carsten (CESSDA)

Session Classification: Talks