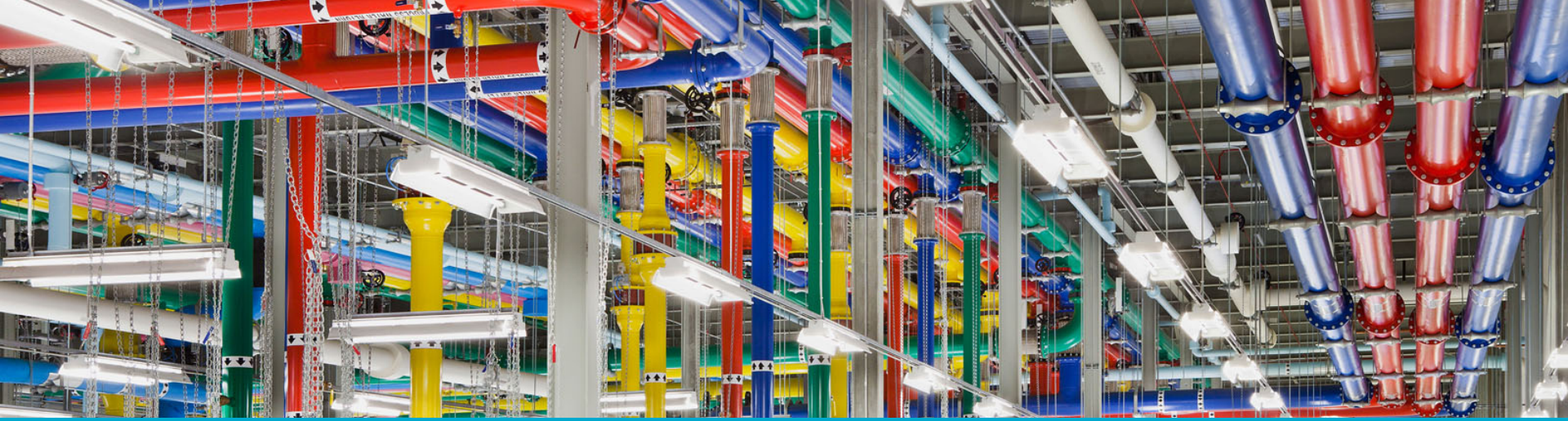


A Crystal/Clear Pipeline

for applied image processing

Christopher Watkins | Research Software Engineer

14 March 2019

IMT | SCIENTIFIC COMPUTING
www.csiro.au

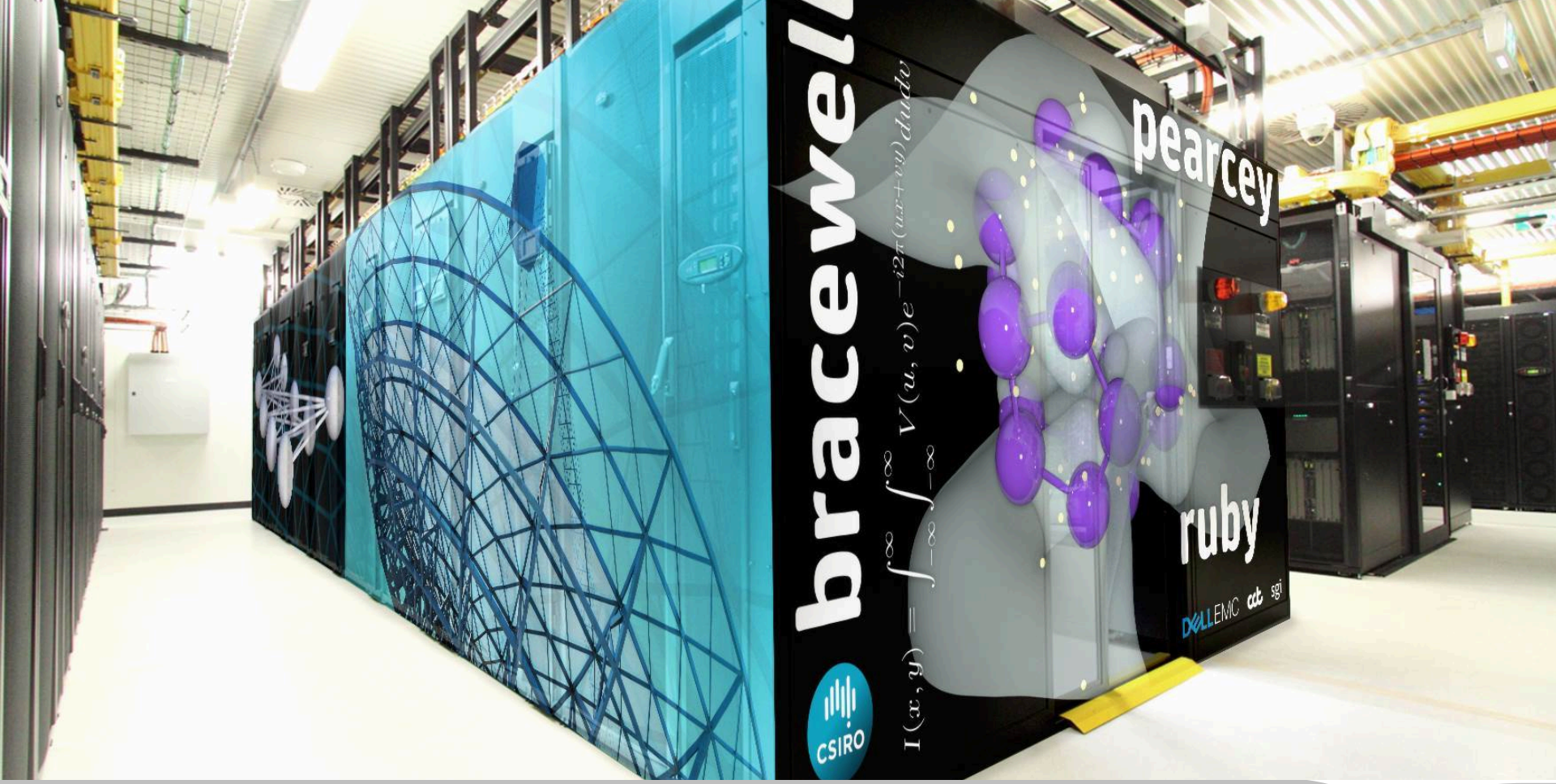
CSIRO

CSIRO:

Commonwealth Scientific and Industrial Research Organisation

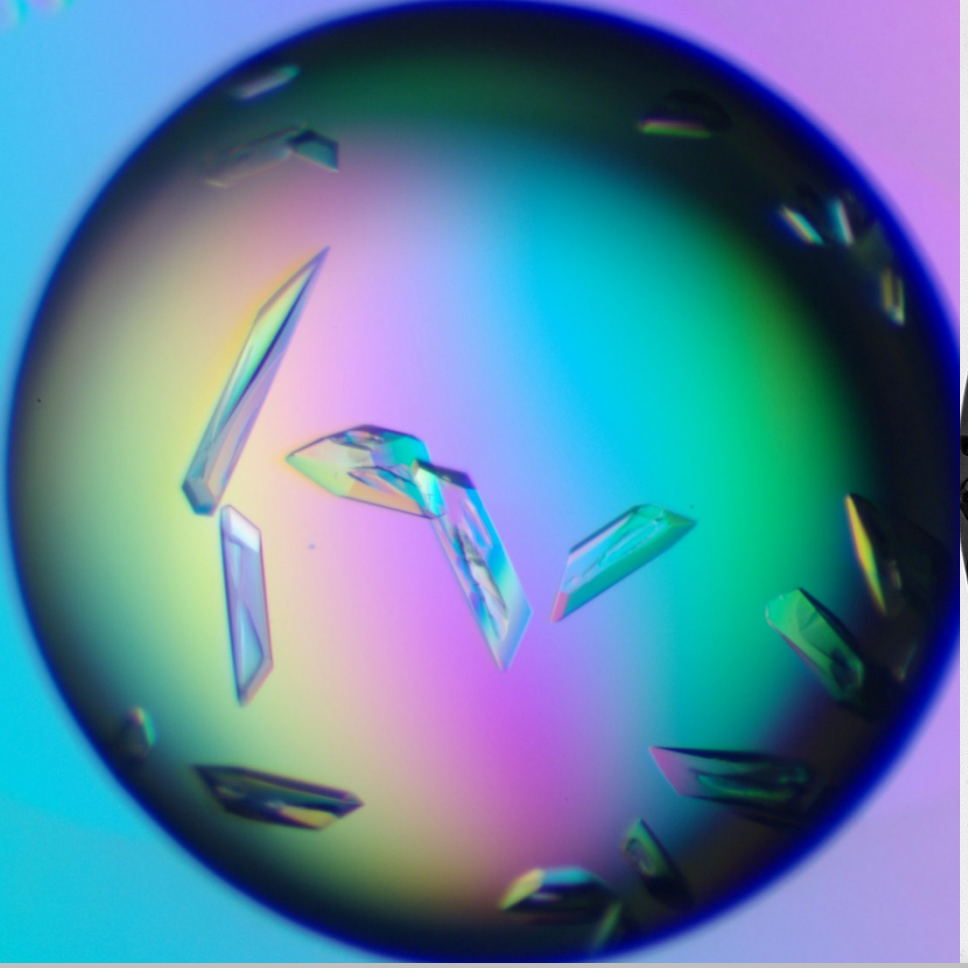
we say sigh-row

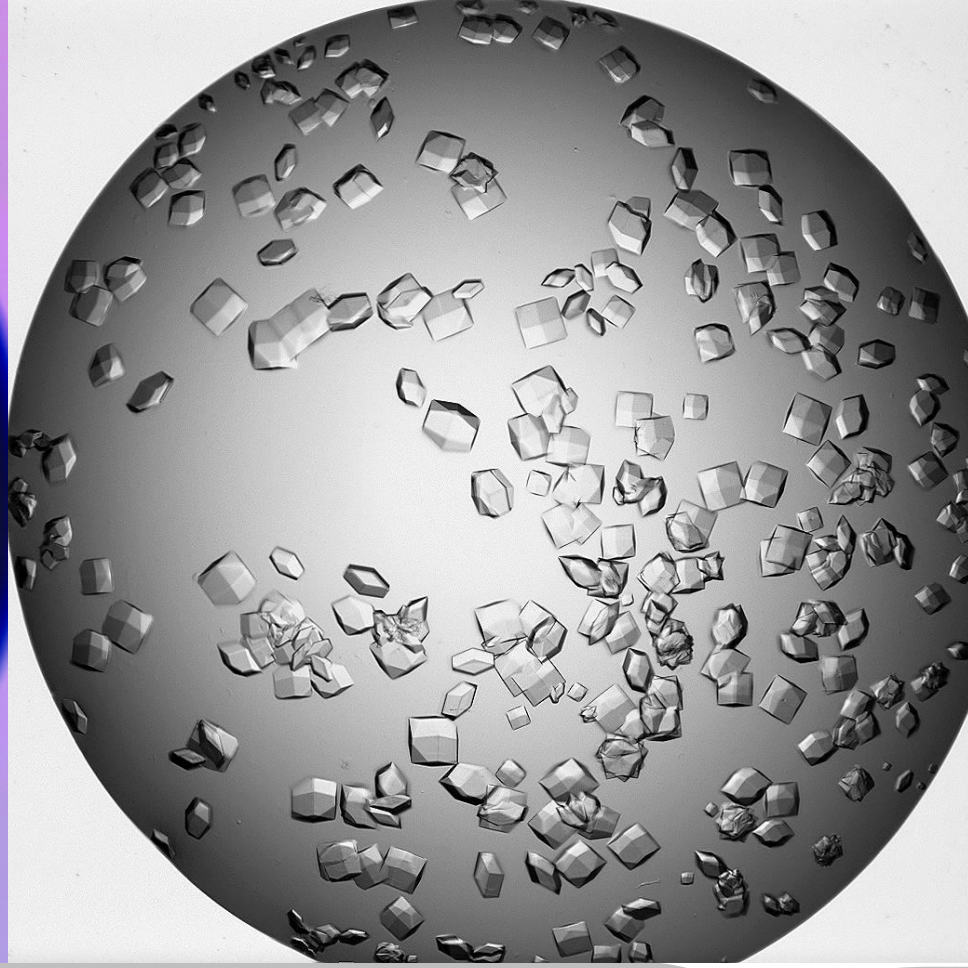
CSIRO

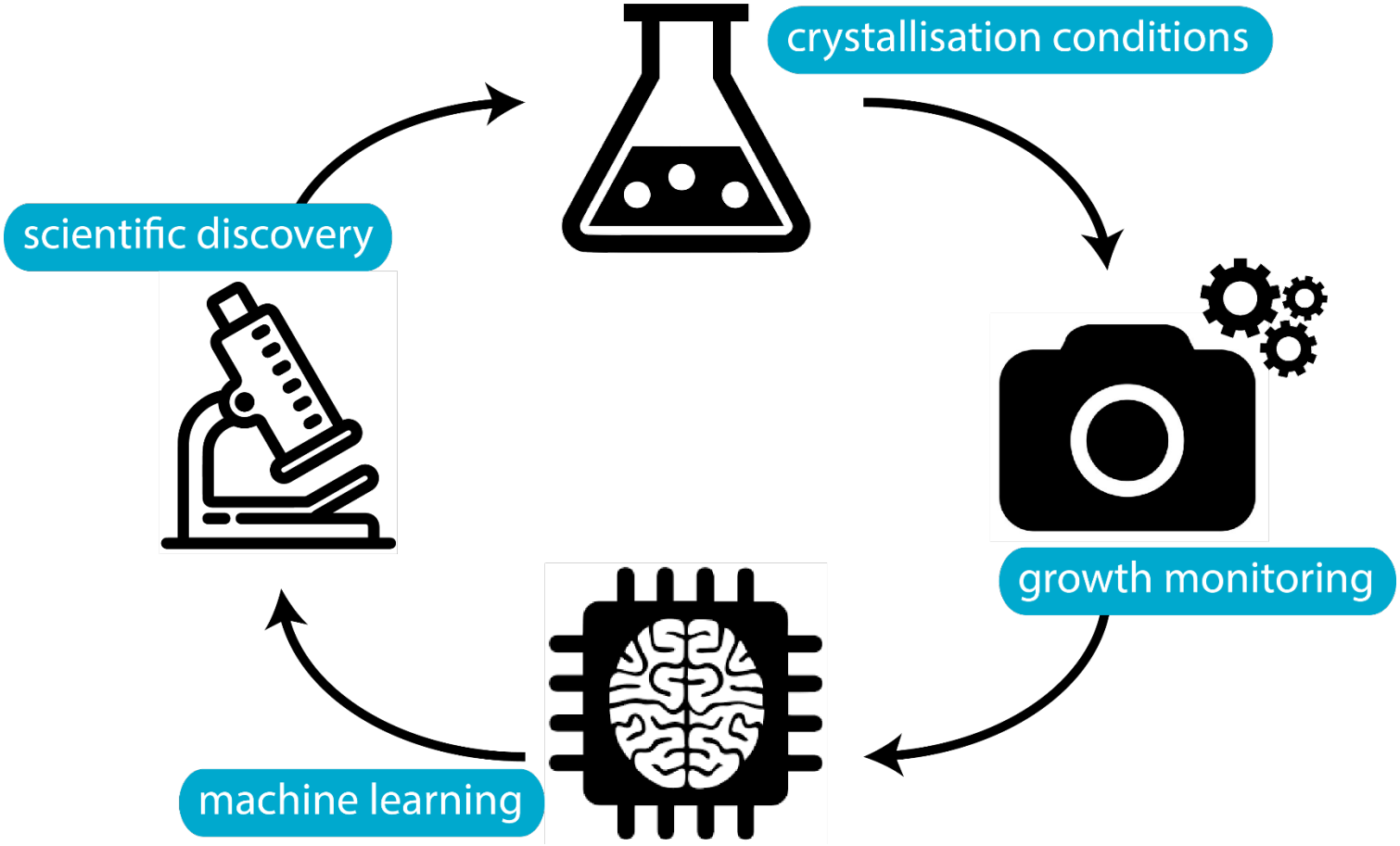

bracewell
pearcey
ruby
CSIRO
DELL EMC
cdt
sgi
$I(x,y) = \int_{-\infty}^{\infty}\int_{-\infty}^{\infty} V(u,v)e^{-i2\pi(ux+vy)}dudv$

C3:
Collaborative Crystallisation Center

diamonds are a girls best friend



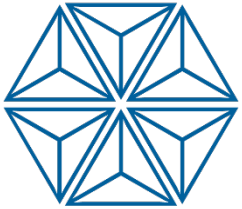



crystallisation conditions
growth monitoring
machine learning
scientific discovery

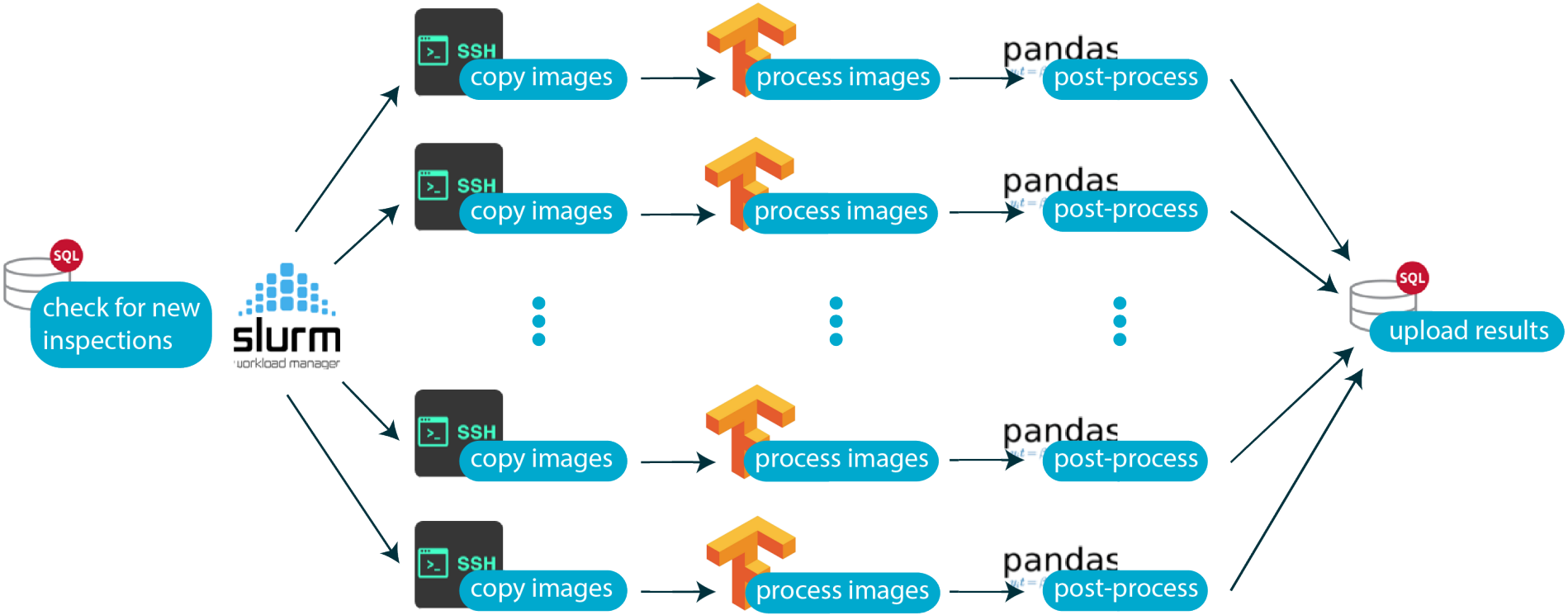
The Pipeline:
Image processing with Python

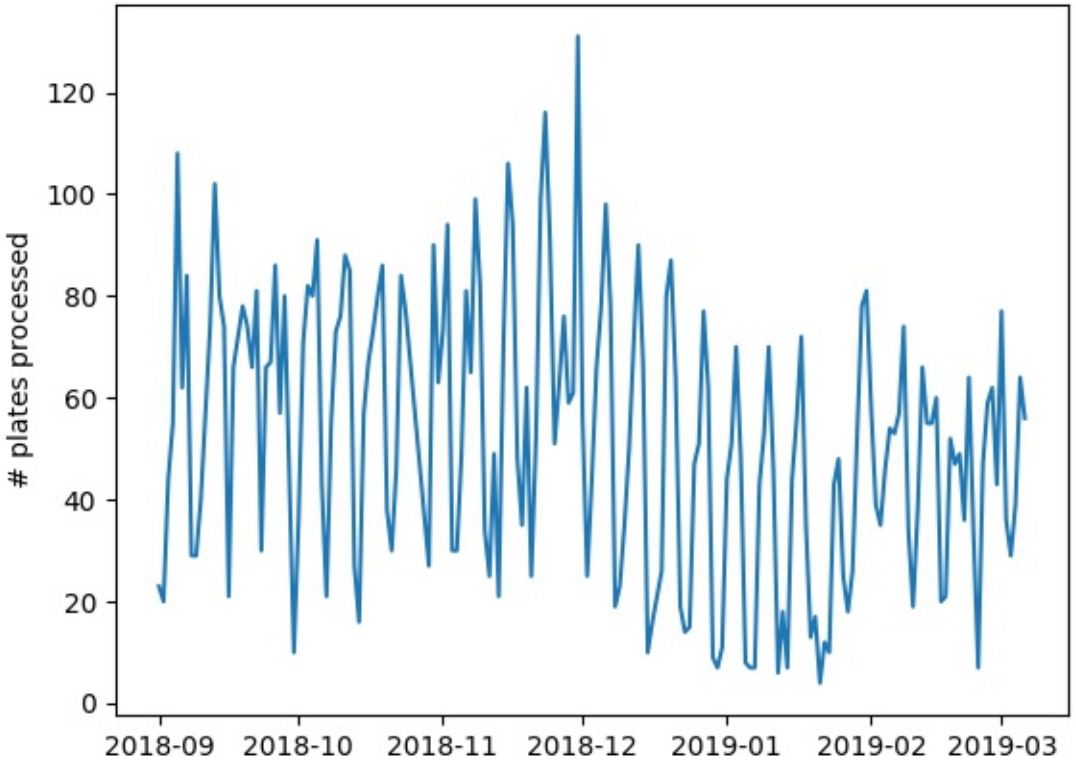
plumbing that Mario would be proud of

HAUPTMAN-WOODWARD
MEDICAL RESEARCH INSTITUTE



Bristol-Myers Squibb


SQL
check for new inspections
slurm
workload manager
SSH
copy images
process images
pandas
post-process
SQL
upload results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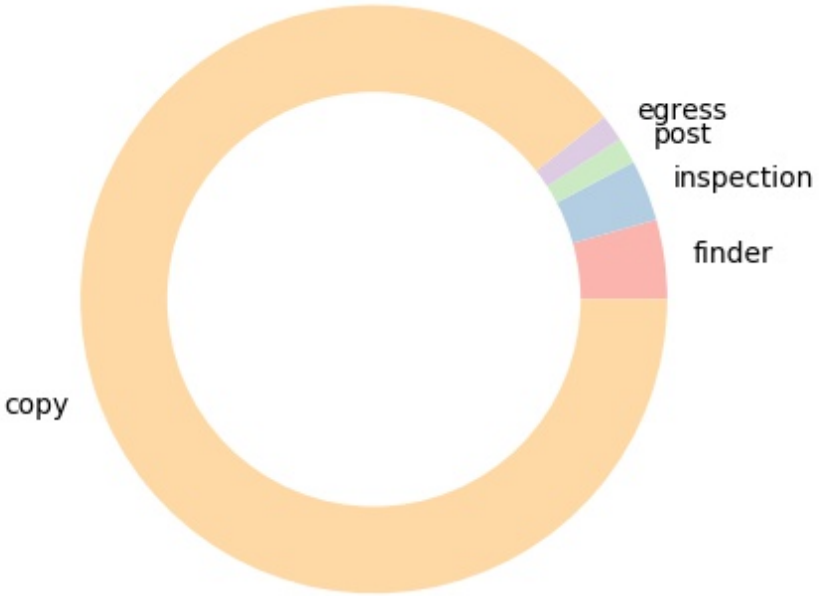
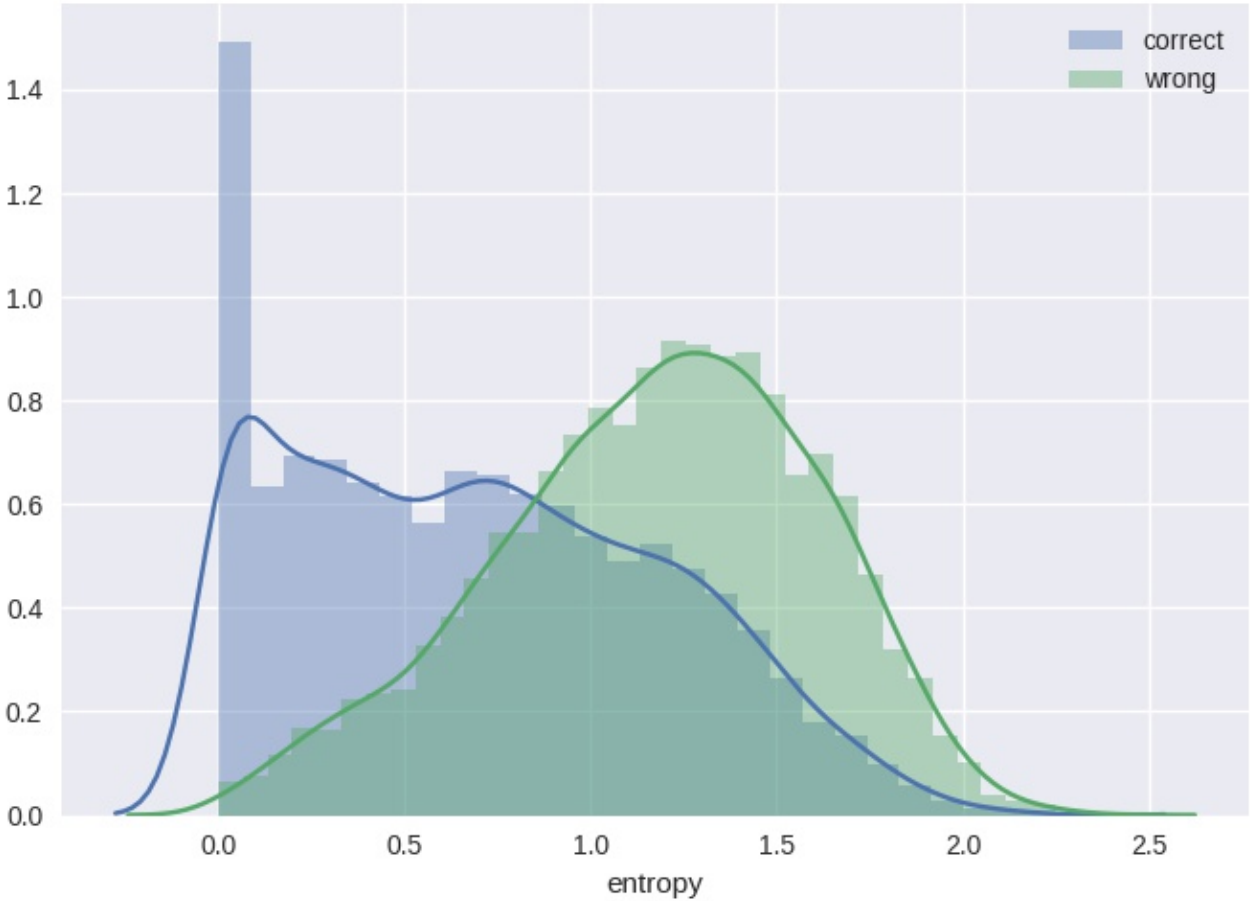
100
80
60
40
20
0
2018-09
2018-10
2018-11
2018-12
2019-01
2019-02
2019-03

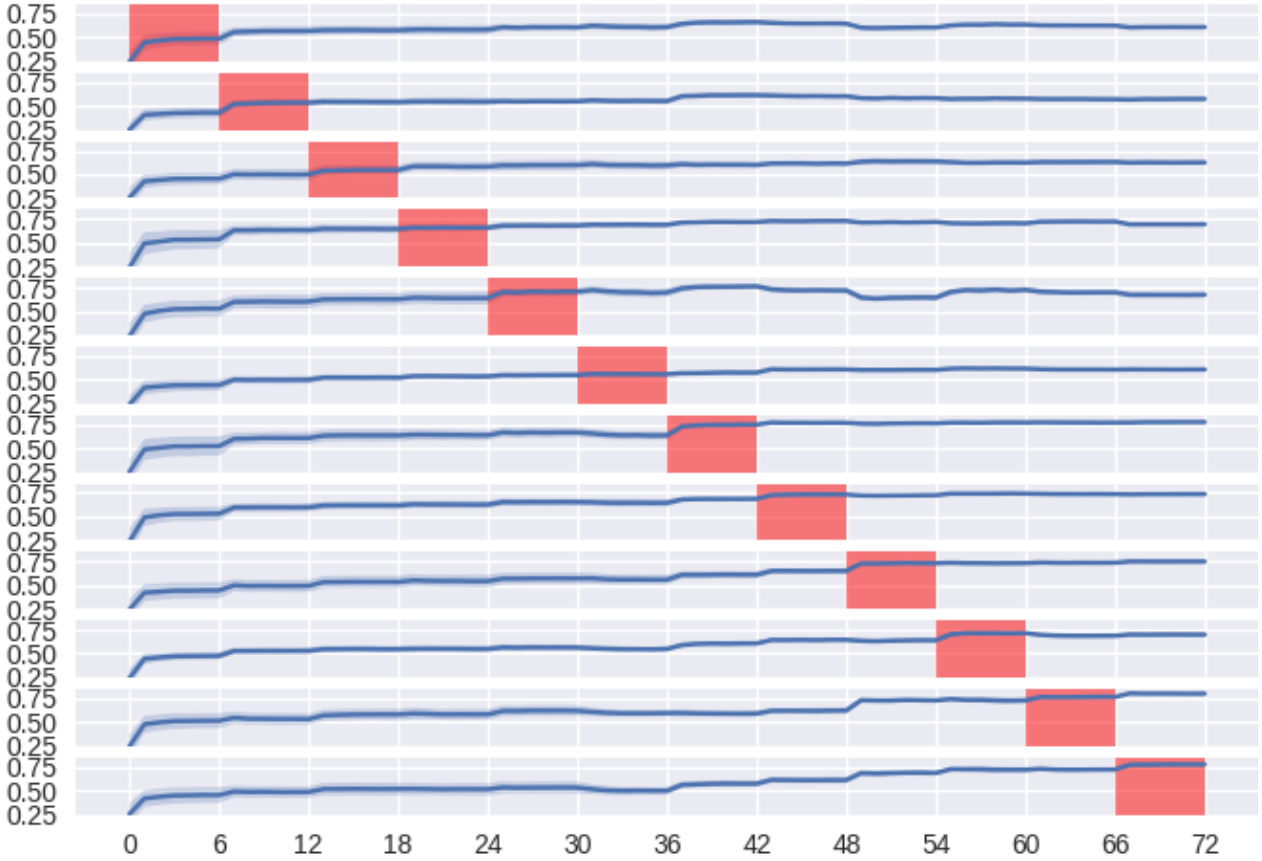

egress
post
inspection
finder
copy

To the Future:

What Can Be Done with an Automated Pipeline?

awesome science!


correct
wrong
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.5
1.0
1.5
2.0
2.5
entropy


0.75
0.50
0.25
0
6
12
18
24
30
36
42
48
54
60
66
72

Thank you

IMT | Scientific Computing
Christopher Watkins
Research Software Engineer
e chris.watkins@csiro.au