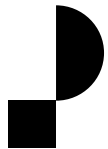


Introduction Machine Learning 101

Graduate Workshops 2020



Agenda

	QLD	NSW & VIC	WA
Introduction	11:00am	12:00pm	9:00am
Coding Exercise	11:45am	12:45pm	9:45am
Short Break	12:15pm	1:15pm	10:15am
Coding Exercise	12:30pm	1:30pm	10:30am
Long Break	1:30pm	2:30pm	11:30pm
Techie Bits	2:00pm	3:00pm	12:00pm
Finish	3:30pm	4:30pm	1:30pm

An aerial night view of a city with glowing white arcs representing data connections. The arcs are white and glowing, connecting various points across the cityscape, which is filled with illuminated buildings and streets. The overall color palette is dominated by blues and purples, with the white arcs providing a stark contrast.

What is machine learning?

Un-supervised learning

Neural networks

Supervised learning

Regression analysis

Reinforcement learning

Support vector machines

Decision trees



Audio-based automatic mating success prediction of giant pandas



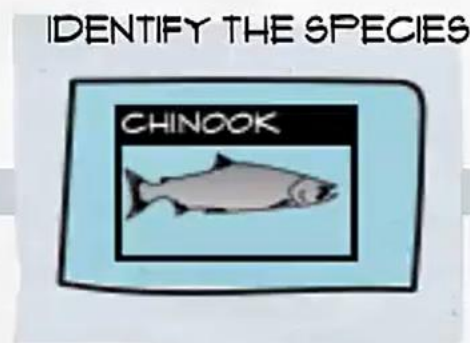
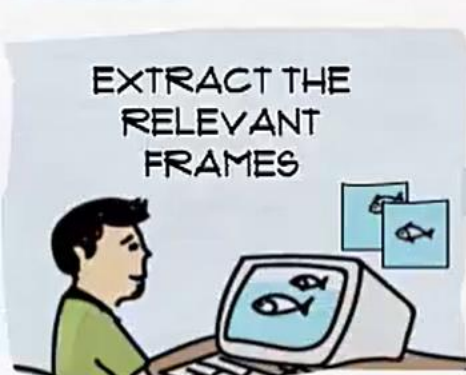
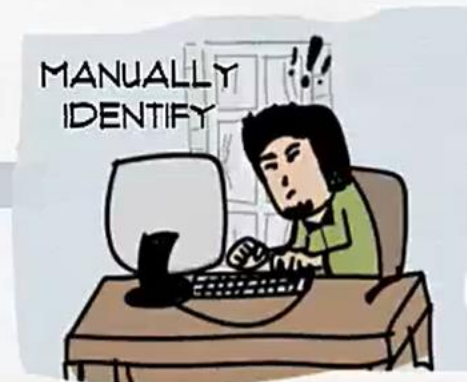
The image consists of two grayscale mammograms of a breast, positioned side-by-side. Each mammogram has a yellow square bounding box highlighting a specific area of interest in the lower central region. A semi-transparent red rectangular box is overlaid on the right side of the image, containing white text.

Neural Networks Improve Radiologists' Performance in Breast Cancer Screening



**Microsoft's
Soundscape app
helps blind people
get around town
with 3D audio cues**

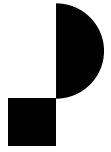
NISQUALLY RIVER FOUNDATION



AUTOMATED AI SOLUTION

1. MICROSOFT AZURE
2. COGNITIVE SERVICES PLATFORM STACK.

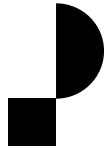
CONTACT@GRAMENER.COM



What is bias?

“Bias is a phenomenon that occurs when an algorithm produces results that are systematically prejudiced...”

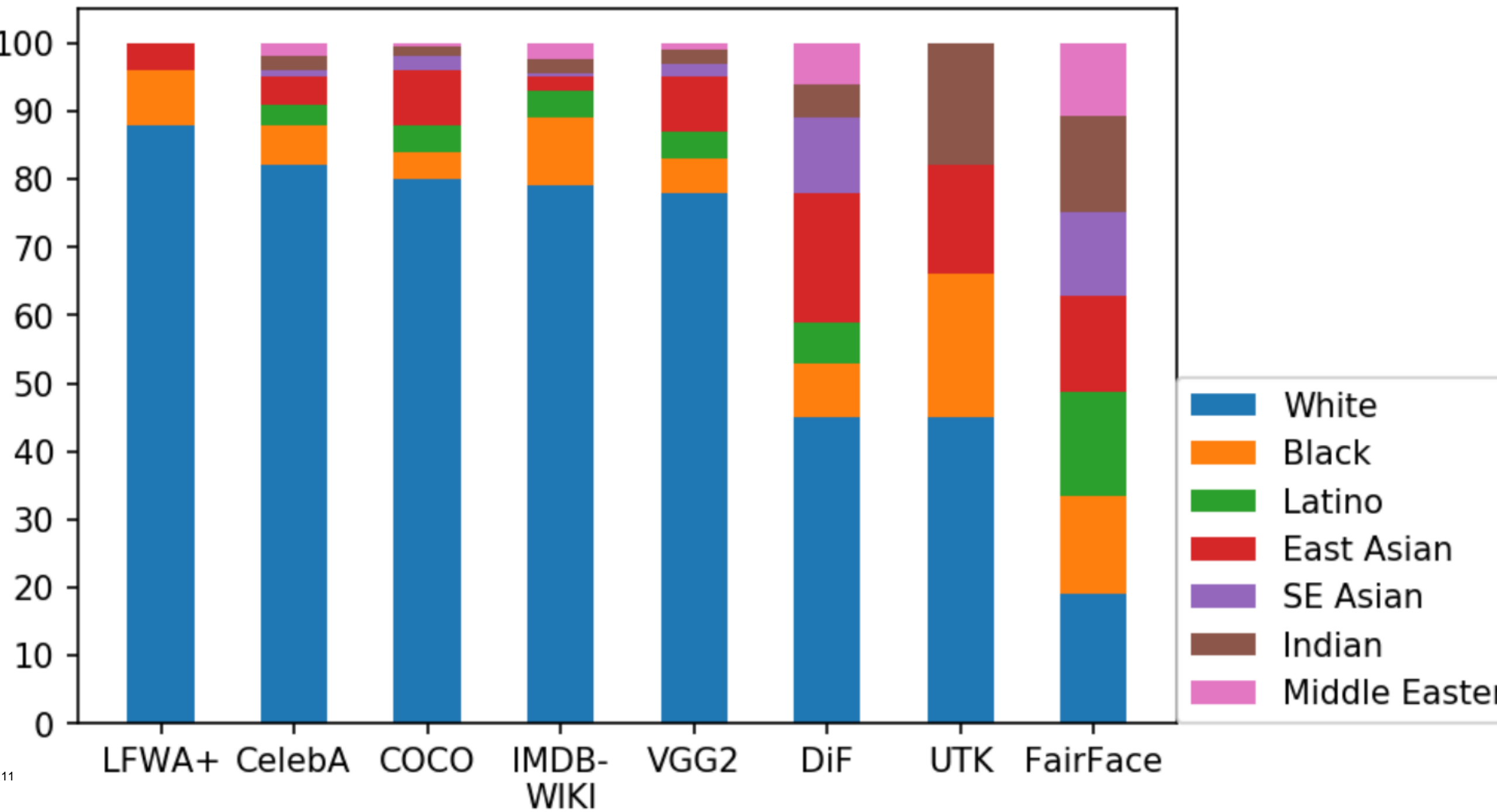




How does something become biased?

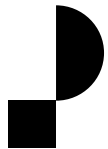
Bias can be introduced when there is an imbalance in our training data.

LFW * accuracy (%)	CFP-FF * accuracy (%)	CFP-FP * accuracy (%)
99.77	99.83	94.21



Labeled Faces in the Wild is a public benchmark for face verification, also known as pair matching. No matter what the performance of an algorithm on LFW, it should not be used to conclude that an algorithm is suitable for any commercial purpose. There are many reasons for this. Here is a non-exhaustive list:

- Face verification and other forms of face recognition are very different problems. For example, it is very difficult to extrapolate from performance on verification to performance on 1:N recognition.
- Many groups are not well represented in LFW. For example, there are very few children, no babies, very few people over the age of 80, and a relatively small proportion of women. In addition, many ethnicities have very minor representation or none at all.
- While theoretically LFW could be used to assess performance for certain subgroups, the database was not designed to have enough data for strong statistical conclusions about subgroups. Simply put, LFW is not large enough to provide evidence that a particular piece of software has been thoroughly tested.
- Additional conditions, such as poor lighting, extreme pose, strong occlusions, low resolution, and other important factors do not constitute a major part of

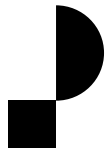


‘Creative ... motivating’ and fired

There's software used across the country to predict future criminals. And it's biased against blacks.

Amazon reportedly scraps internal AI recruiting tool that was biased against women

Police across the US are training crime-predicting AIs on falsified data



But don't despair!



The Institute for Ethical AI & Machine Learning

The Institute for Ethical AI & Machine Learning is a UK-based research centre that carries out highly-technical research into processes and frameworks that support the responsible development, deployment and operation of machine learning systems.



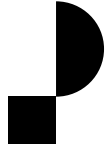
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ABOUT USF ♦ ACADEMICS ♦ ADMISSION
STUDENT LIFE ♦ SAN FI

🏠 / THE DATA INSTITUTE / INITIATIVES / **CENTER FOR APPLIED DATA ETHICS**

Center for Applied Data Ethics

At the Center for Applied Data Ethics (CADE), we are working to address ethical issues such as the magnification of unjust bias, increased surveillance, spread of disinformation, alarming uses of predictive policing, a lack of accountability for tech companies, and more. Our focus is on having a direct, practical impact. Our inaugural year is funded by a generous donation from Craig Newmark (founder of Craigslist). [Rachel Thomas](#) serves as founding director. Our work includes a mix of education, research, public policy, and civil advocacy.



Next: hands on machine learning model development and training

<https://github.com/ptats/ml101-grad-workshop>