

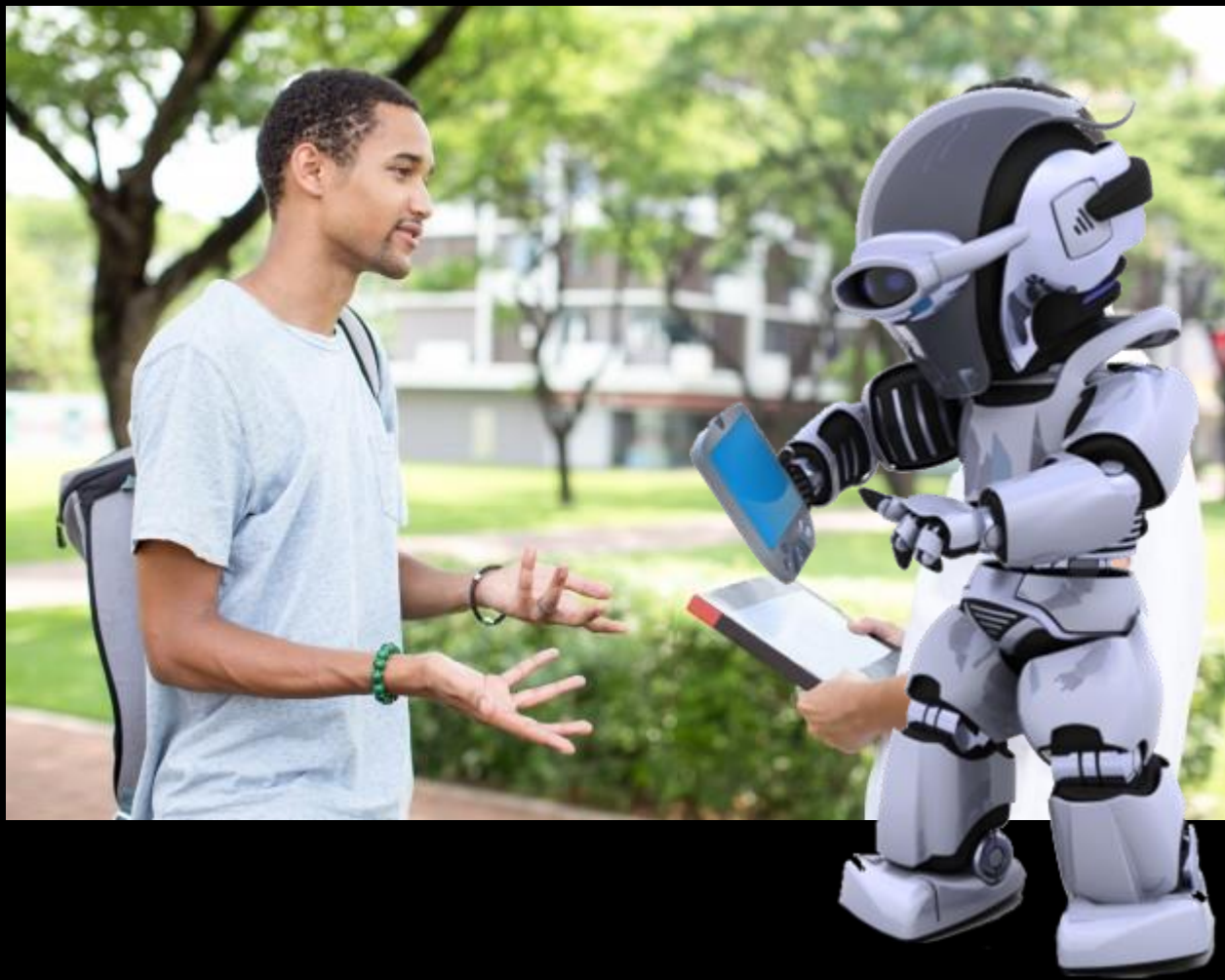
Video transcription and Tagging

- Introduction
- Why video?
- Existing transcript sites
- The age of API's
- Man and machine, $1 + 1 = \infty$
- Audio noise
- Bias and ethics
- Transfer learning
- Ensemble model aggregation
- Federated learning
- Privacy
- Cloud computing
- Tagging
- Text analytics
- Conclusion



Daniel Bailey





MICRO
SOFT

Google
Google!



MICROSOFT

Google



IBM

MICROSOFT

Google

amazon.com
EARTH'S BIGGEST BOOKSTORE
Early 1998

IBM

Microsoft®

Google

AMAZON.COM
1998

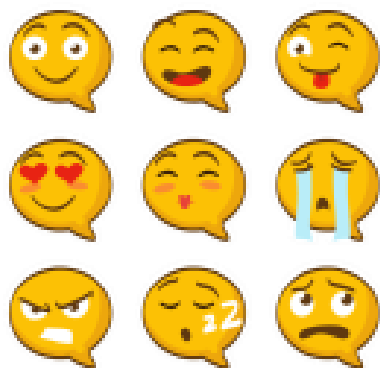
IBM



Google



IBM



Word cloud containing terms related to communication, creativity, and technology. Key words include: communication, word, cloud, creativity, text, technology-driven, 21st-century, skills, learn, students, excellent, subject, examples, using, wordle, counting, importance, fun, visual, generators, including, free, created, composed, particular, frequency, plus, Tagul, easy, today's, thrive, TagCrowd, ImageChef, size, world, online, wordiness, indicated, used, competencies, tagxedo, Tagul, easy, today's, technology-driven, 21st-century, image, learn, students, excellent, subject, examples, using, wordle, counting, importance, fun, visual, generators, including, free, created, composed, particular, frequency, plus, Tagul, easy, today's, thrive, TagCrowd, ImageChef, size, world, online, wordiness, indicated.



The background features a complex, abstract design. It includes a grid of squares that recedes into the distance, overlaid with a network of lines and dots resembling a circuit board or data paths. The lines are in various shades of gray and black, some solid and some dotted. A large, dark gray diagonal shape cuts across the lower-left portion of the image, providing a solid background for the text.

Why video?

Q1. Take a photo of the contents of your bathroom cabinet.

	North	East	South	West
Male				
Female				

Q1. Take a photo of the contents of your bathroom cabinet.

	Garnier	Redken	Loreal	Pantene
				
North				
South				

The background features a complex, abstract design. On the left, a dark grey, angular shape overlaps the main area. The entire background is covered with a network of thin, grey lines that resemble circuit traces or data paths. These lines are interspersed with various geometric elements: small circles, squares, and triangles. A prominent feature is a grid of squares that recedes into the distance on the right side, creating a sense of depth. The overall color palette is monochromatic, using shades of grey and black on a white background.

Existing transcript sites



JOG.AI



CAPTURE • MANAGE • MINE



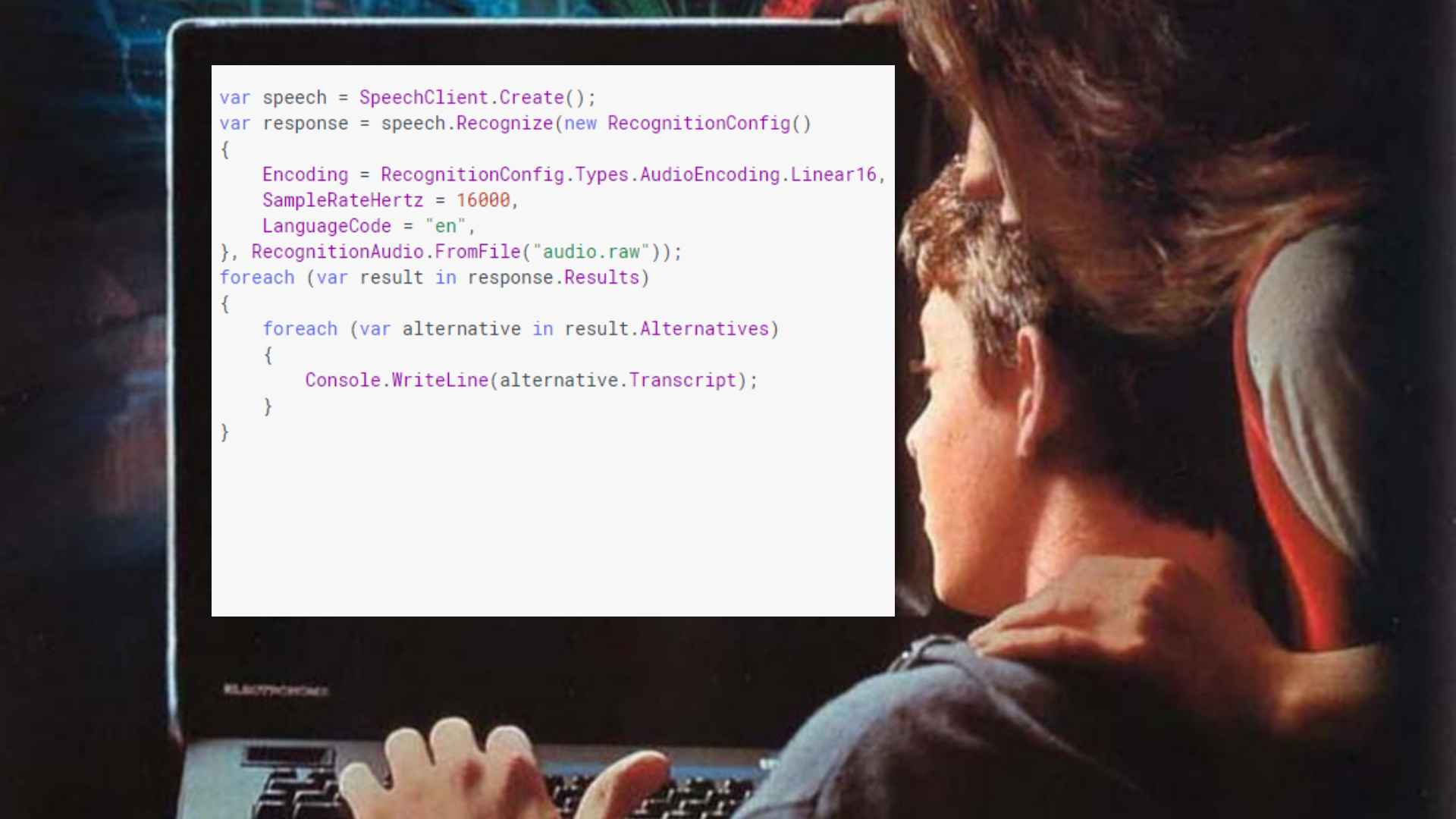




The background features a complex, abstract design. It includes a dark, diagonal band on the left side, which serves as a backdrop for the text. Overlaid on this and the rest of the image are various geometric and circuit-like elements: thin grey lines, some with circular nodes, and a series of concentric, slightly offset rectangular grids that create a sense of depth and perspective. The overall aesthetic is technical and modern.

The age of API's

Application
Programming
Interface



```
var speech = SpeechClient.Create();
var response = speech.Recognize(new RecognitionConfig()
{
    Encoding = RecognitionConfig.Types.AudioEncoding.Linear16,
    SampleRateHertz = 16000,
    LanguageCode = "en",
}, RecognitionAudio.FromFile("audio.raw"));
foreach (var result in response.Results)
{
    foreach (var alternative in result.Alternatives)
    {
        Console.WriteLine(alternative.Transcript);
    }
}
```

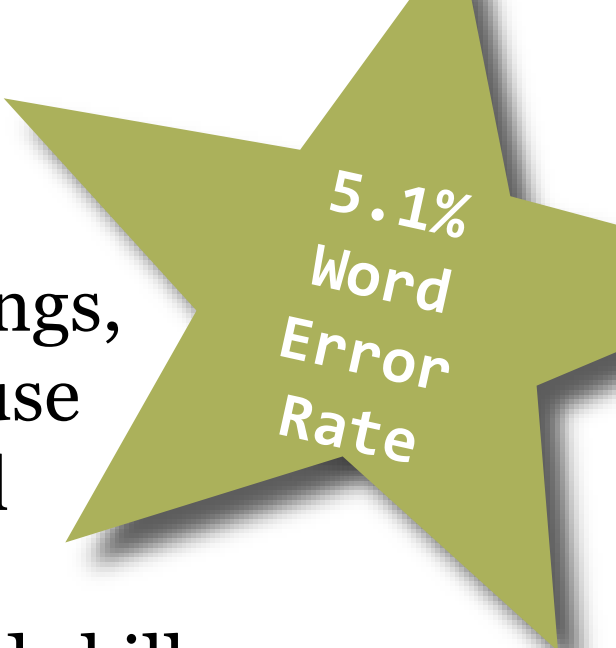
```
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foreach (var result in response.Results)
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    foreach (var alternative in result.Alternatives)
    {
        Console.WriteLine(alternative.Transcript);
    }
}
```

helpline for making the claim
Berry pool pool need to know
good good oh very good need
Polo coat and the time sounded
like sound device but then
when I went through it with my
claim and spoke to the advisor
quite a few different
initially had so much about
the quality of advice...

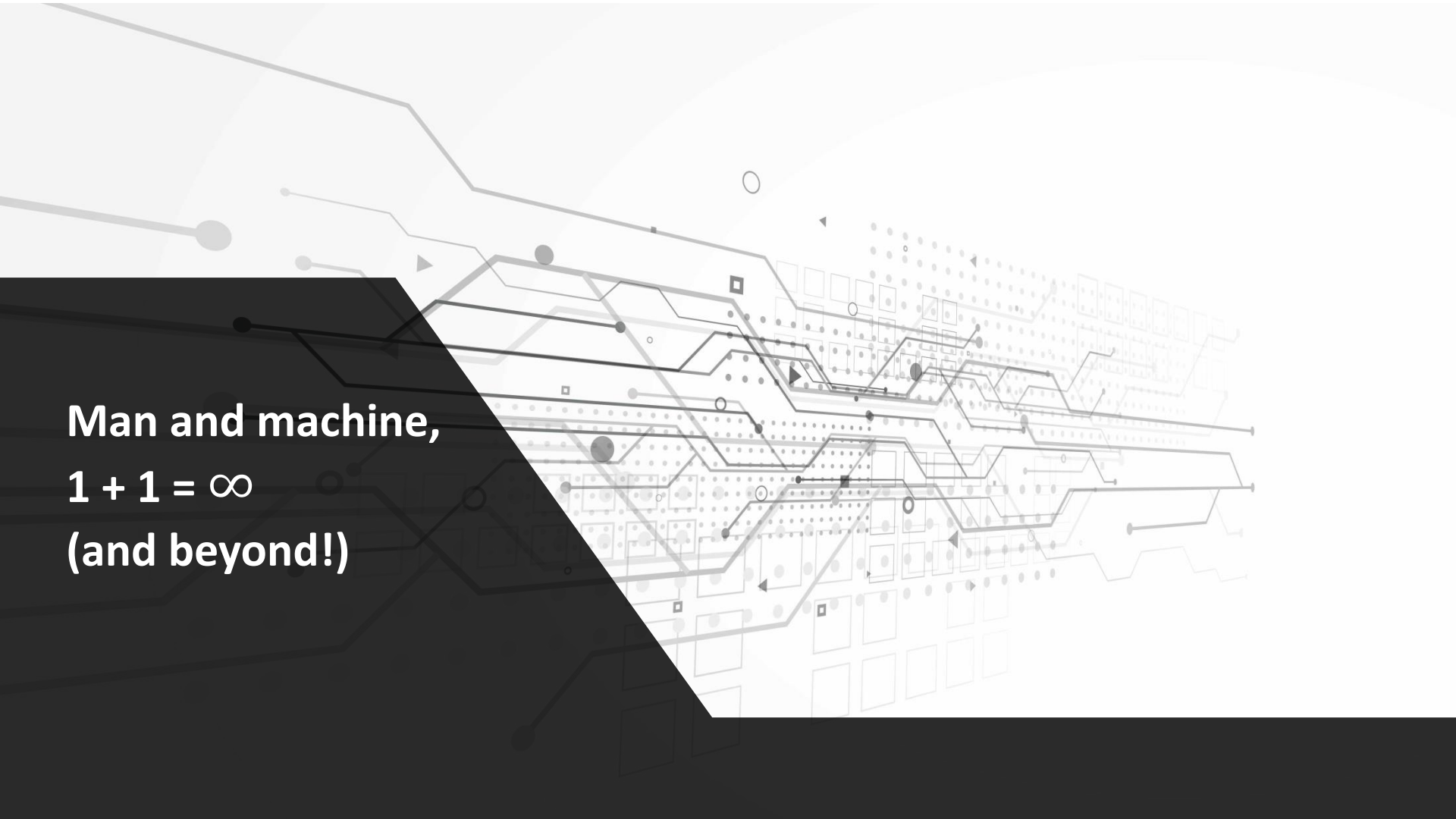
F

*Very poor
see me
after
class*

“We choose to go to the Moon. We choose to go to the Moon in this ~~decayed~~ decade and do the other things, not because they are easy, but because they are hard; because that ~~gold~~ goal will ~~swerve~~ serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one we intend to ~~when~~ win, and the others, too.”



5.1%
Word
Error
Rate

The background features a complex, abstract design. It includes a dark, diagonal band on the left side. Overlaid on this and the rest of the image are various geometric and circuit-like elements: thin grey lines, some with circular endpoints, a grid of small squares, and a larger grid of dots. The overall aesthetic is technical and futuristic.

**Man and machine,
 $1 + 1 = \infty$
(and beyond!)**

Yanny?



Laurel?



Find the hiding cat





Can
you
spot
the
cat?





0% Cat

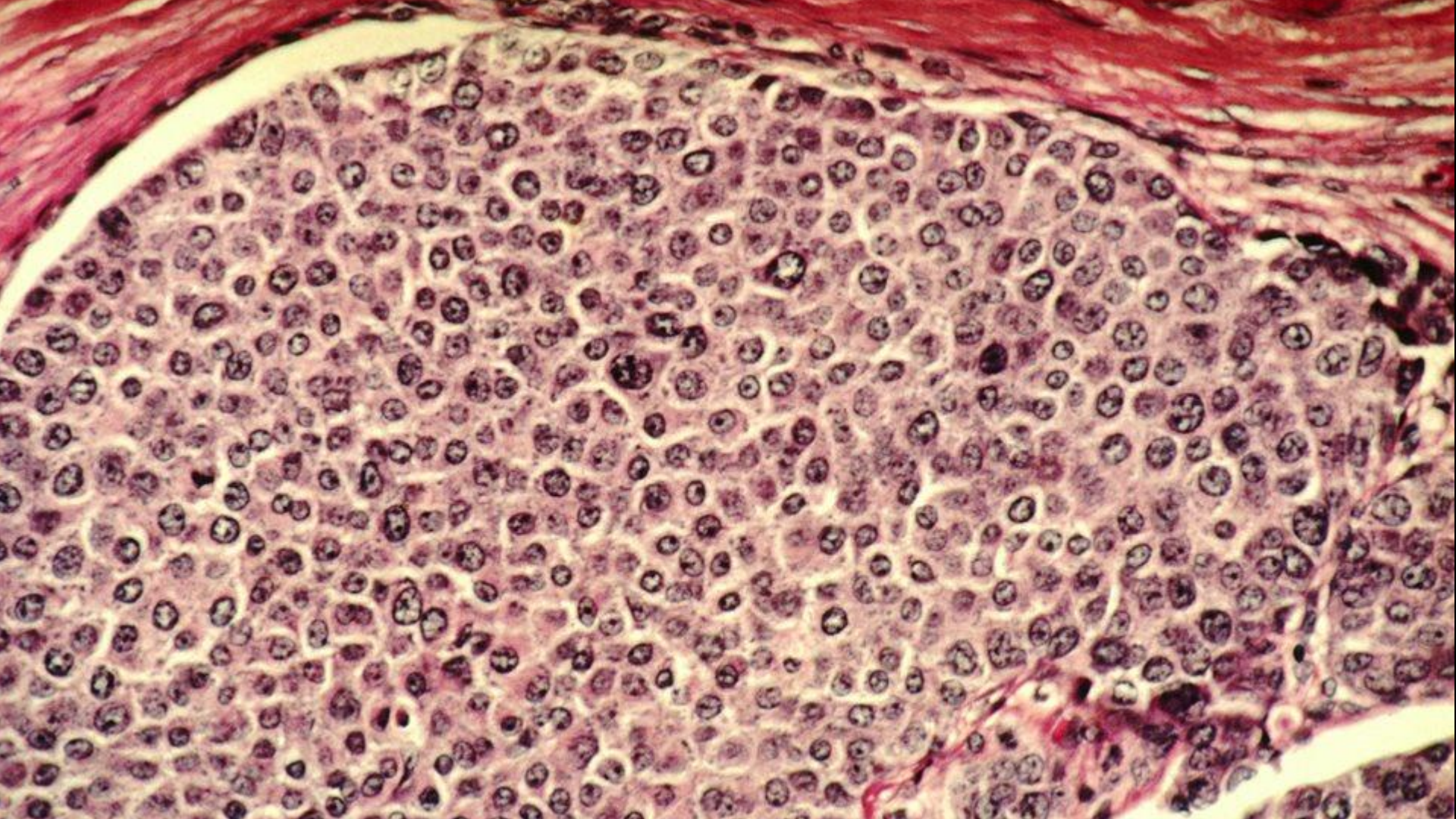
100% Cat

“

The computer is incredibly fast, accurate, and stupid. Man is unbelievably slow, inaccurate, and brilliant. The marriage of the two is a force beyond calculation.

Leo Cherne

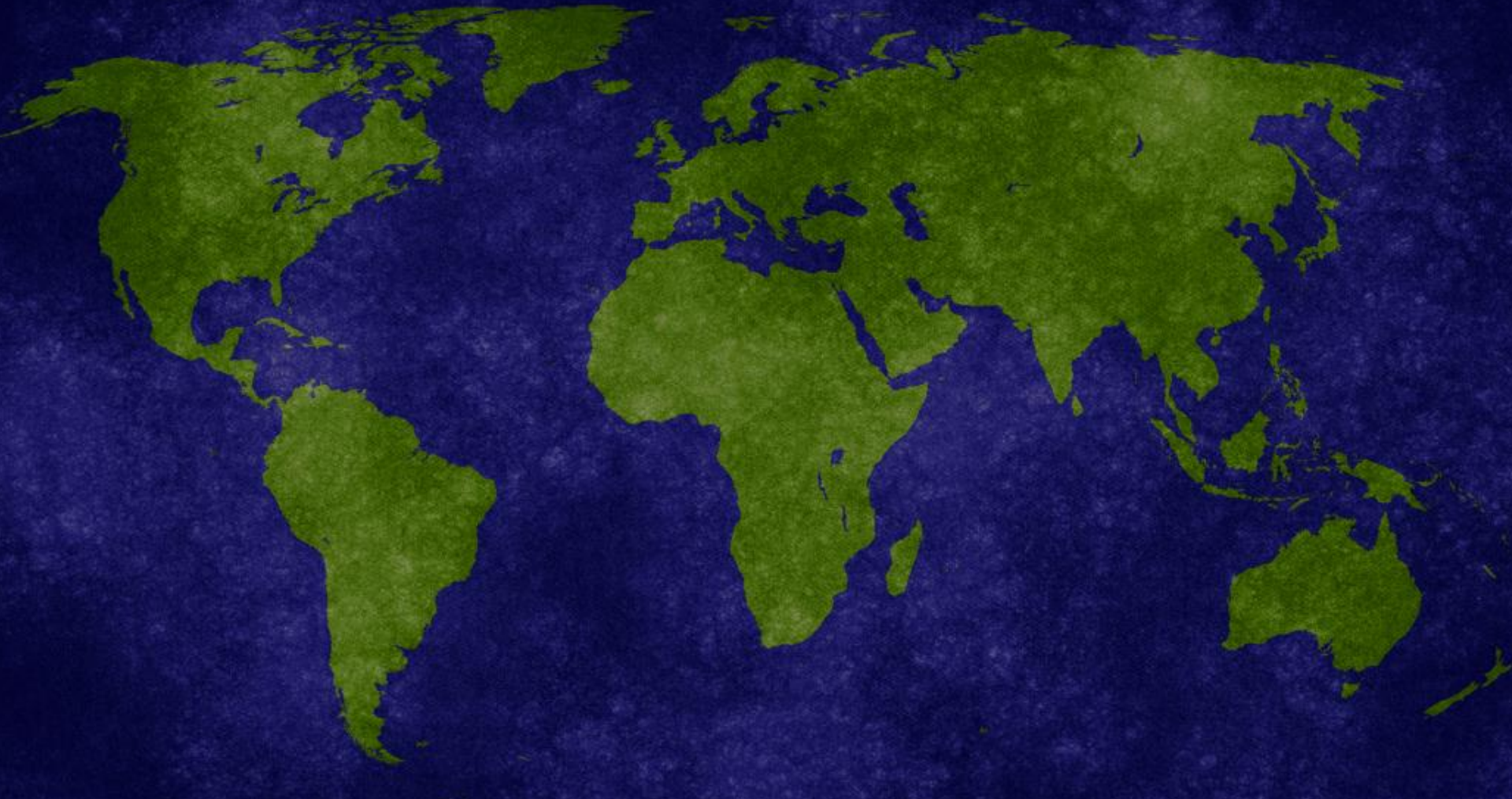
”





ence and improving customer care is
ess of this organisation. In order to
rds our structure
materials and utilise the latest mon
that we may continue to pass on

instance



"World Grunge Map" by Nicolas Raymond is licensed under CC BY 2.0



Why video? ✓

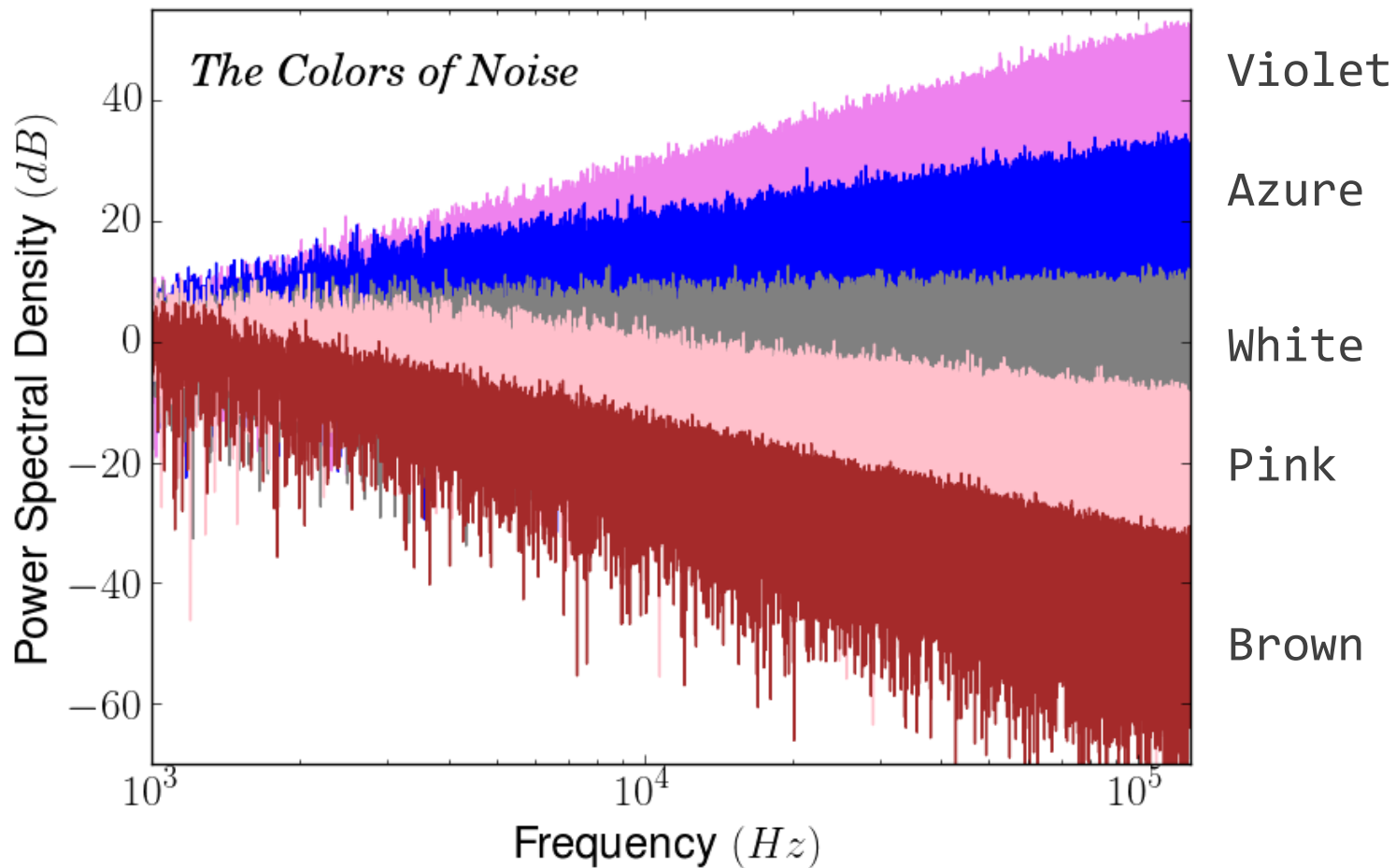
Existing transcript sites ✓

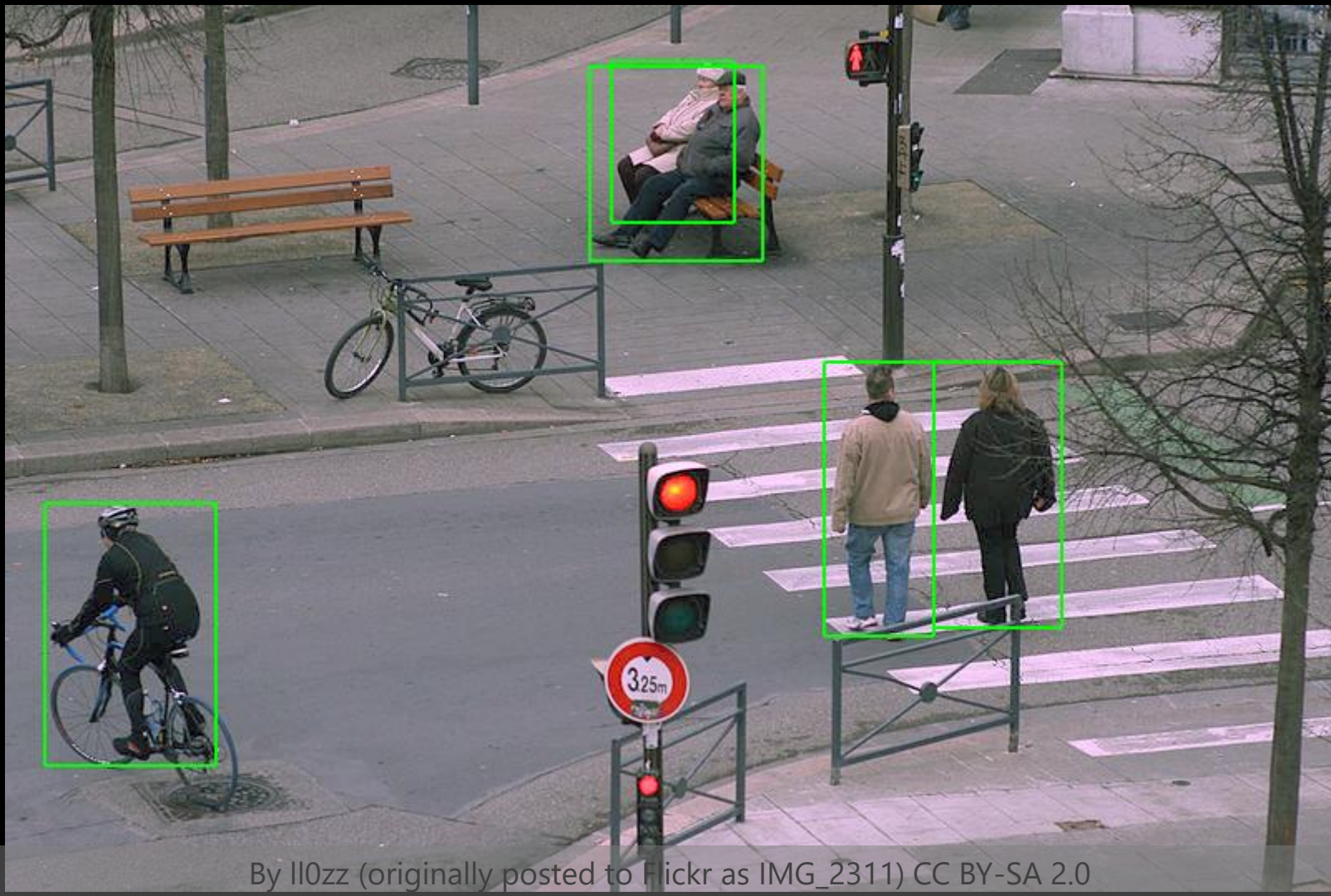
API's ✓

Man and machine ✓

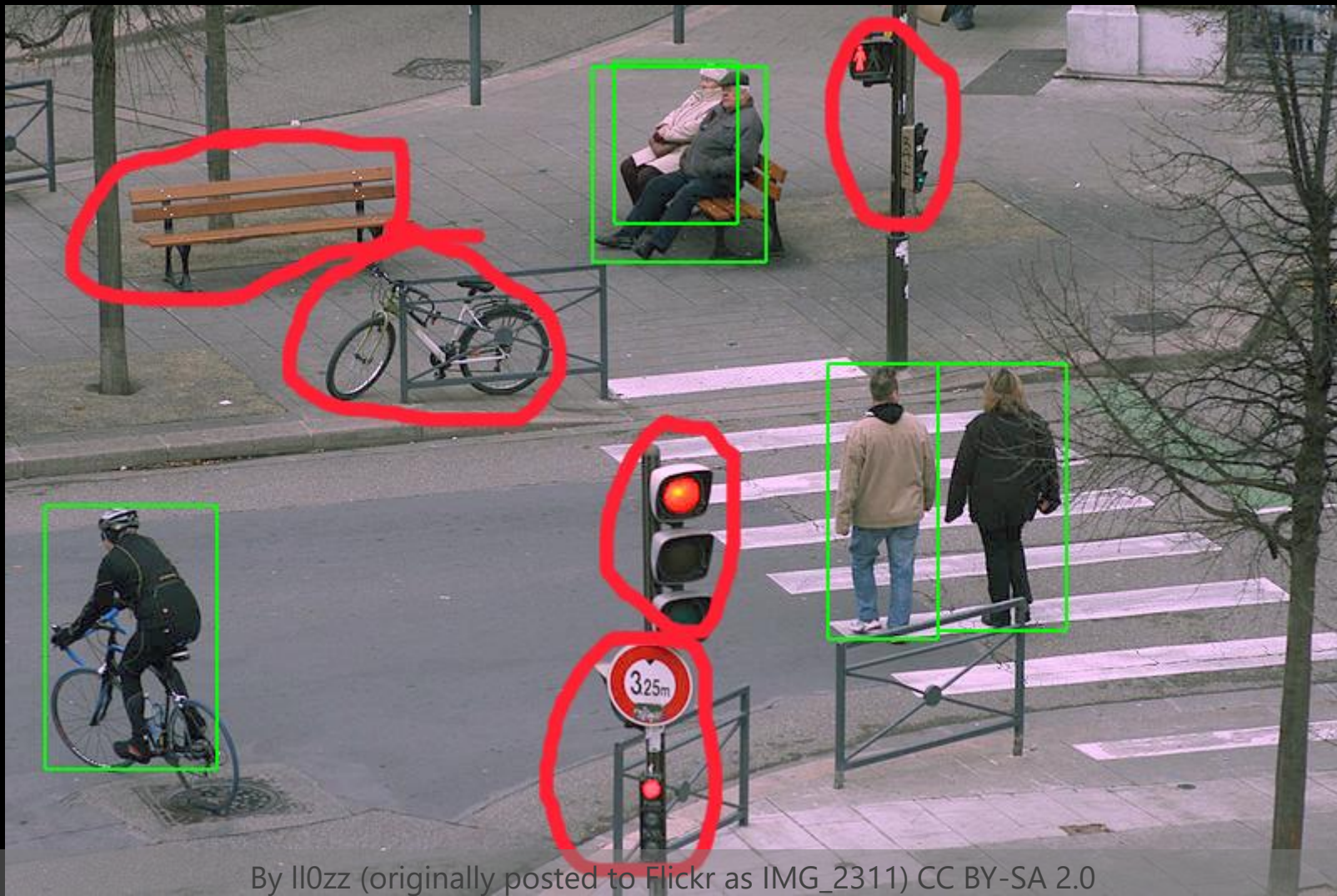
The image features a complex, abstract design. A dark, diagonal band runs from the bottom-left towards the center-right. The background is white with faint, light-gray circuit-like lines and a grid of small squares. Overlaid on this are various geometric shapes: circles, squares, and triangles, some solid and some hollow. The lines are of varying thicknesses and colors, including dark gray and light gray. The overall aesthetic is technical and futuristic.

Audio noise





By ll0zz (originally posted to Flickr as IMG_2311) CC BY-SA 2.0



By ll0zz (originally posted to Flickr as IMG_2311) CC BY-SA 2.0

The background features a complex, abstract design. It includes a dark, diagonal band on the left side. Overlaid on this and the rest of the image are various geometric elements: thin, grey circuit-like lines with small circles and squares at their ends; a series of concentric, light-grey arcs in the upper right; and a grid of small, light-grey squares that recede into the distance on the right side. The overall aesthetic is technical and futuristic.

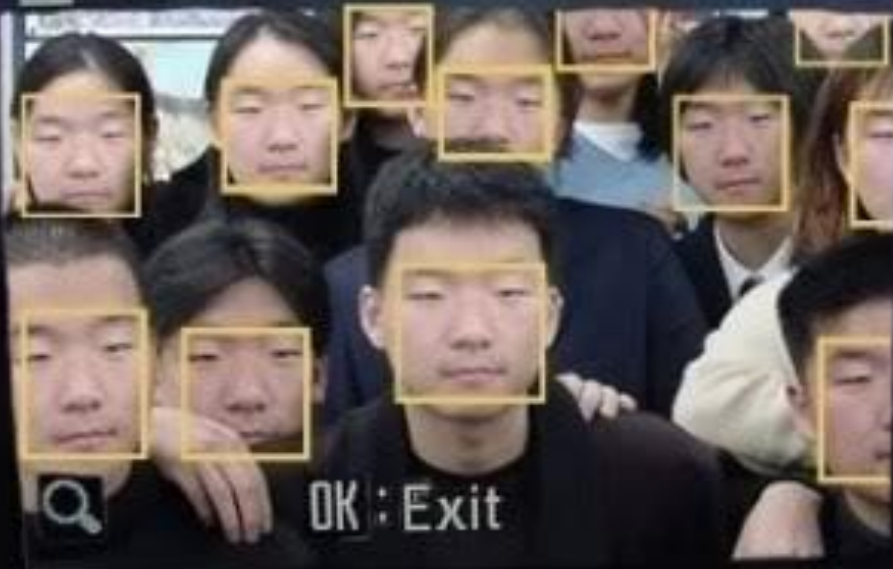
Bias and ethics



"Divorce balance - scale" by Cordell and Cordell is licensed under CC BY 2.0



Did someone blink?



OK: Exit

Nikon

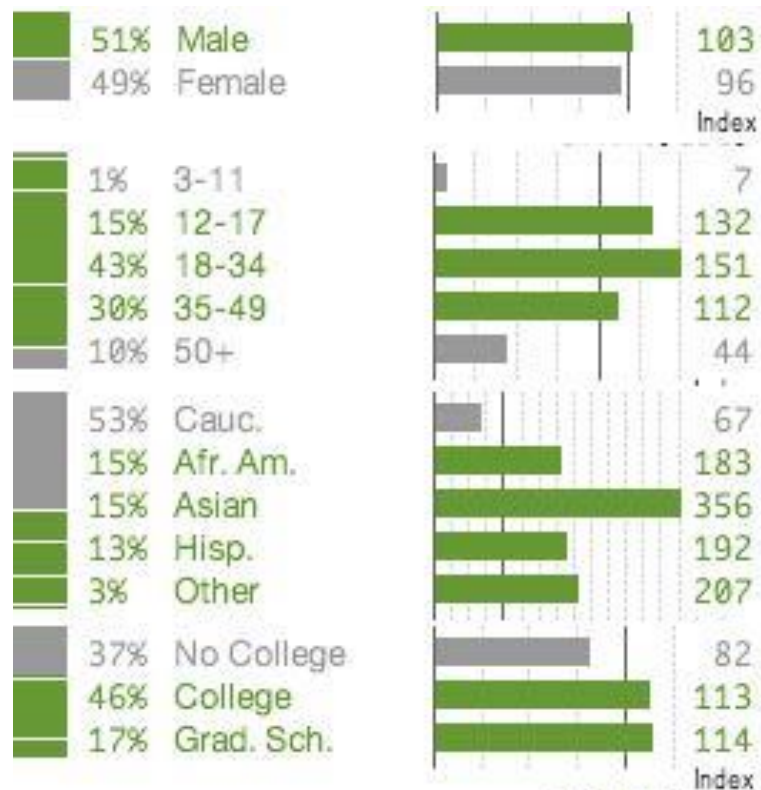
SHOOT/ISO







"thumbs up" by Sarah Reid is licensed under CC BY 2.0



? buyiPhone.apple.com | Education

quaxntcast

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quaxntcast

© 2009 Quantcast Corp.

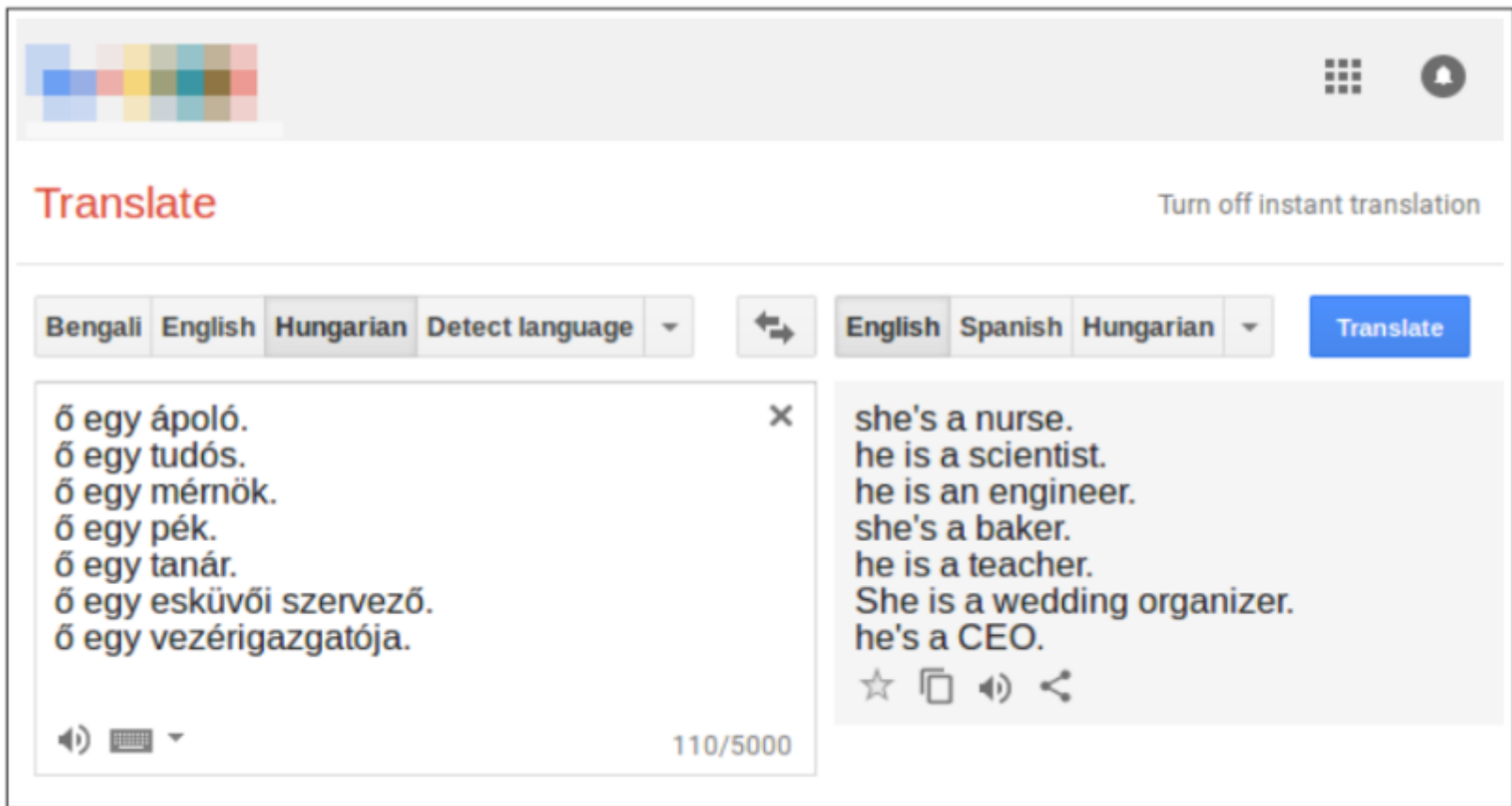




"Yard of tenement, New York City" by cea + is licensed under CC BY 2.0

Ethics of machine learning systems

1. Fairness
2. Reliability
3. Privacy & security
4. Inclusiveness
5. Transparency
6. Accountability



Marcelo O. R. Prates, Pedro H. C. Avelar, Luis Lamb. (2018). Assessing Gender Bias in Machine Translation -- A Case Study with Google Translate.
<https://arxiv.org/pdf/1809.02208.pdf>

The background features a complex, abstract design. It includes a dark, diagonal band on the left side, overlaid with white circuit-like lines and dots. To the right, a lighter area contains a grid of squares, some of which are filled with dots. Overlaid on this grid are various geometric shapes, including circles, squares, and triangles, connected by thin, dark lines that resemble circuit traces. The overall aesthetic is technical and digital.

Bias in transcriptions

Norfolk

'Oid rarely loike a bear' – 'I'd like a bee'

'Oh dare, oi hit a dare' – 'Oh bother, my car appears to have had a collision with a deer'

'Moy hart aloive! Slow yew down an' hold yew hand' – 'Well I never! Please take things easy'

'Moined 'ow yer go' – 'Take care of yourself'

'Bor, thassa lud a ole squit' – 'My man, what you say is a load of rubbish'

'Co ter heck, thass a rum 'un' – 'My goodness, how odd!'

Newcastle

Nee - no

Dee - do

Gan - go

Dived yew hand – 'Well I never! Please take things easy'

Doon - down

Teen - city centre

Propa - significantly

Owa - over

Neet - not

Us - me



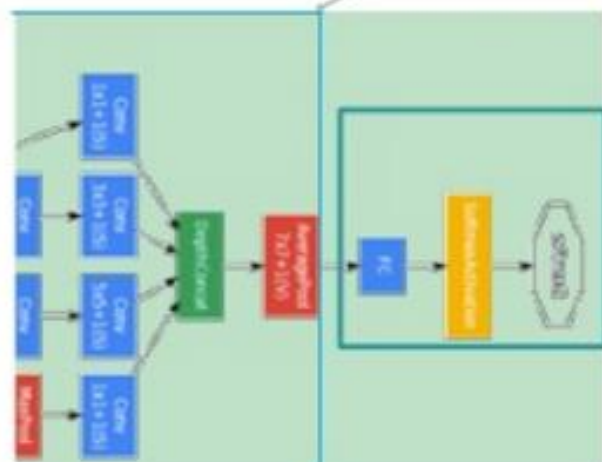
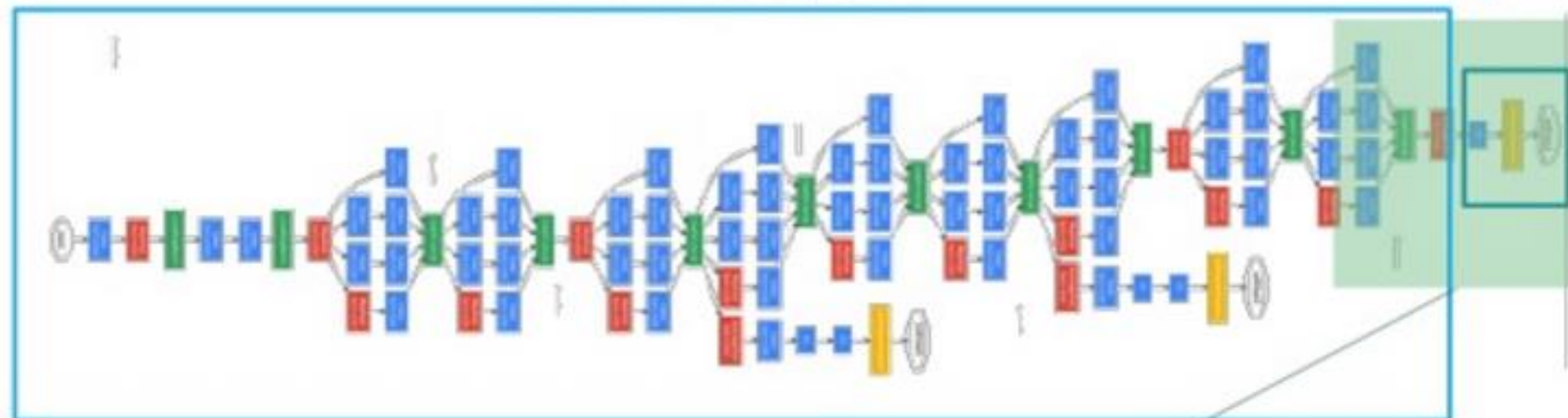
Hardware ✓
Audio noise ✓
Bias and ethics ✓
Bias in transcriptions ✓

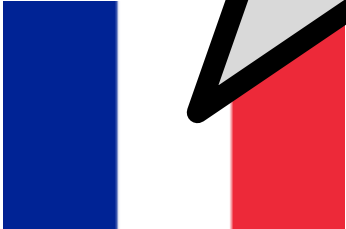
Transfer learning

The background of the slide is a complex, abstract graphic. It features a dark, diagonal band on the left side, which serves as a backdrop for the title. Overlaid on this and the rest of the slide are various geometric and circuit-like elements. These include thin, grey lines that resemble circuit traces, some with small circles or squares at their endpoints. There are also larger, semi-transparent grid patterns that look like they might be representing data or a network. The overall aesthetic is technical and modern, with a focus on lines and shapes.

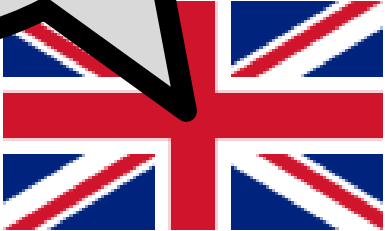
Fix these layers

Train this layer

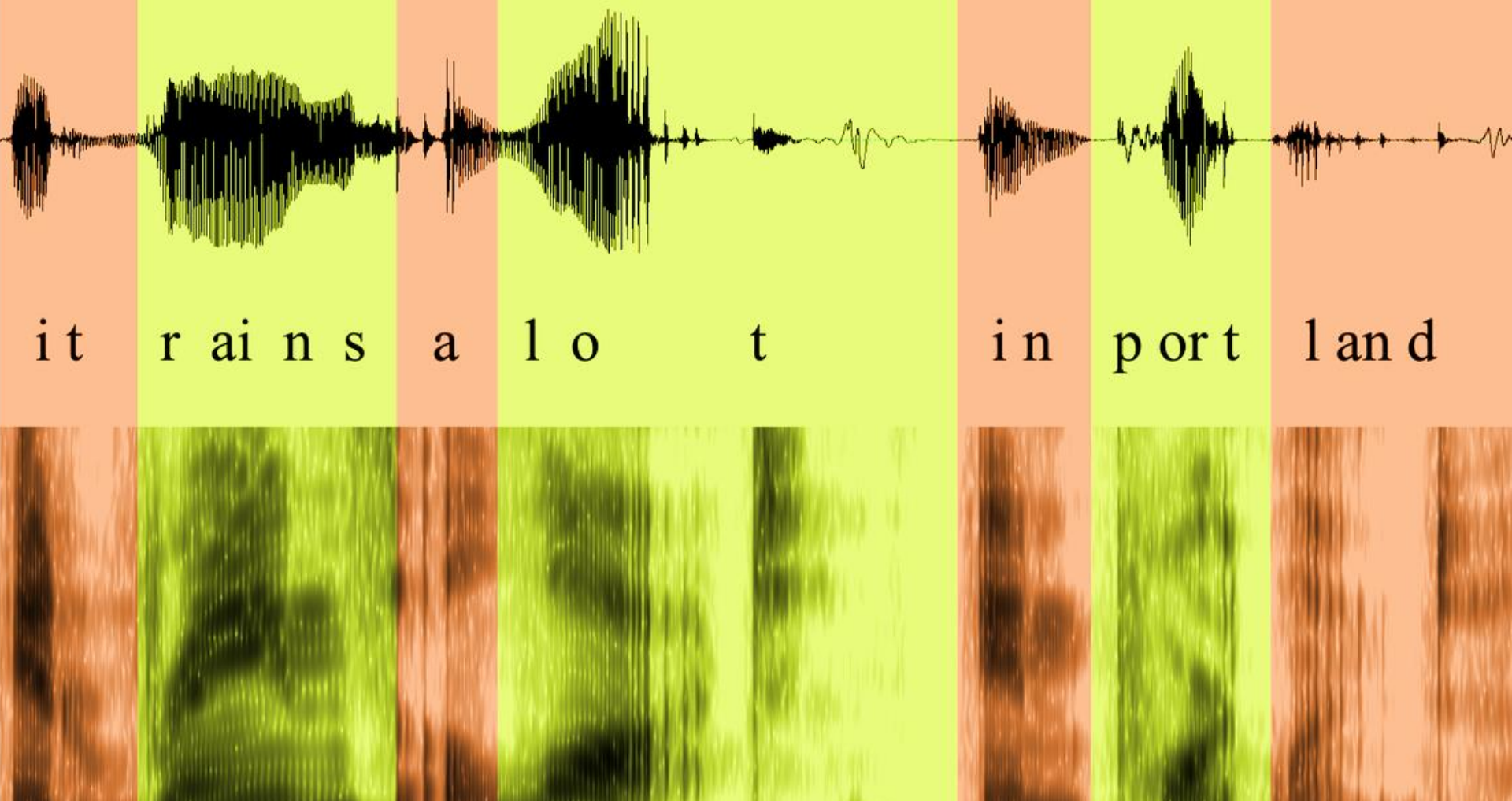




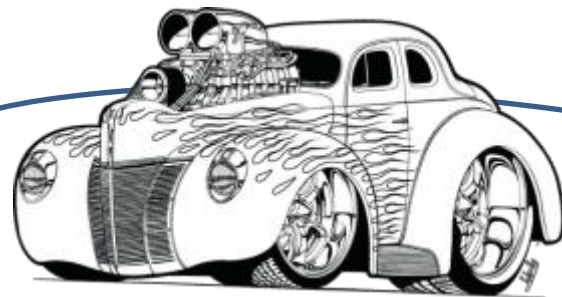
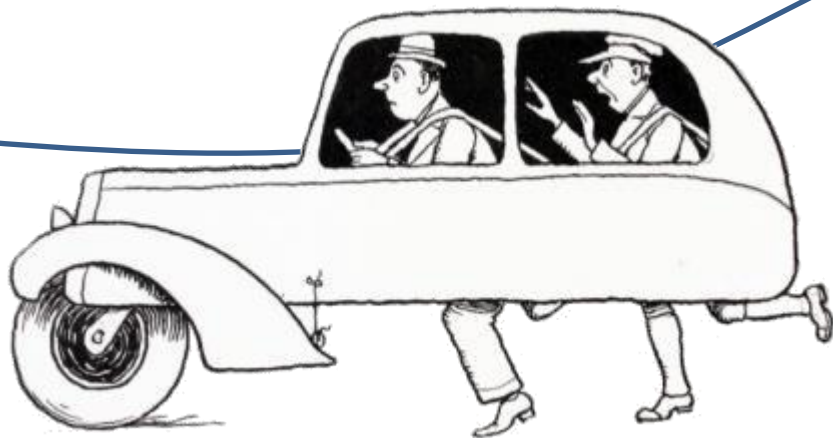
**Oui
Pain
Lait
Fille
Carte
Banque**



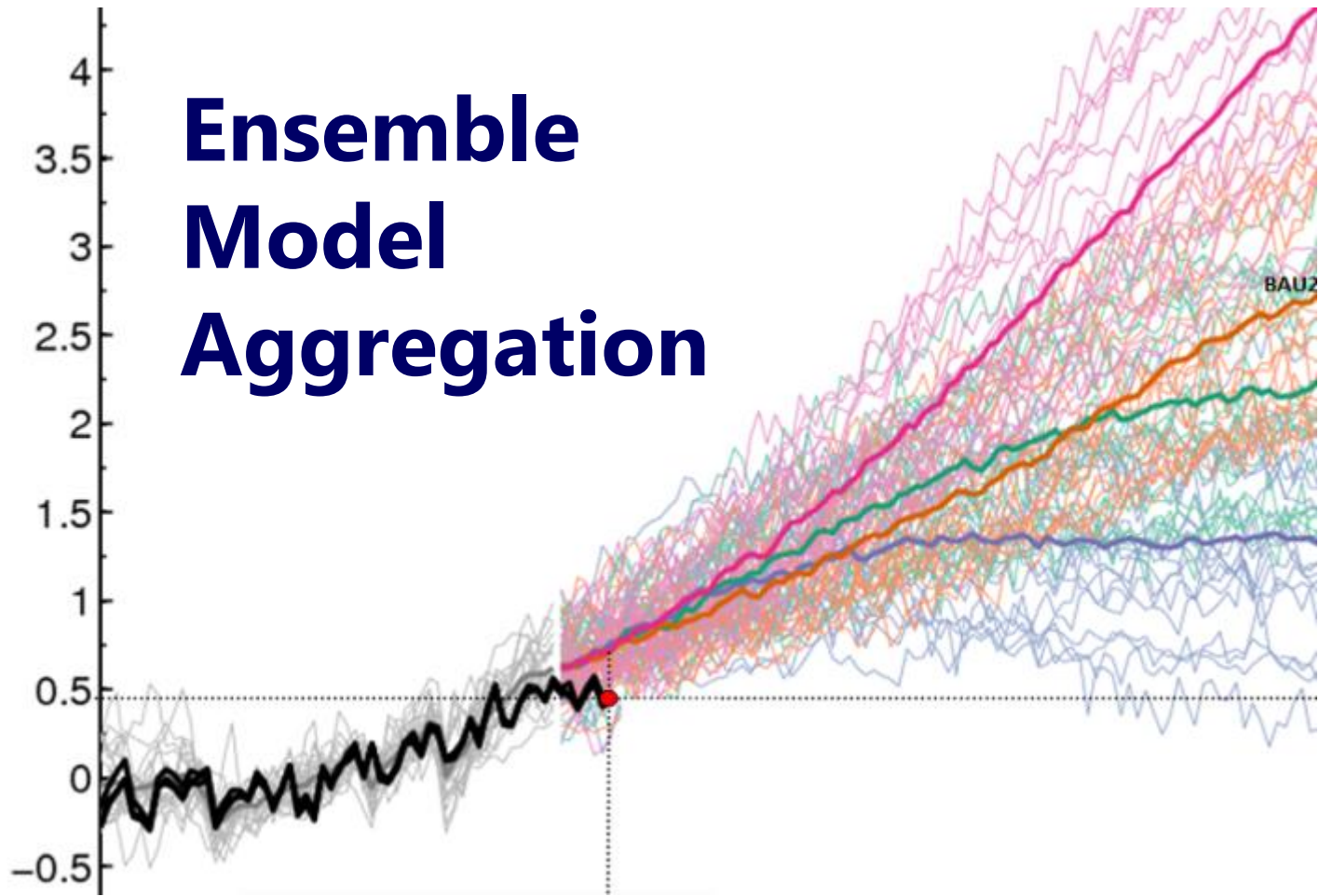
**We
Pan
Lay
Fee
Cart
Bonk**



By Flickr: Aaron Parecki - Flickr: It Rains a Lot in Portland, CC BY 2.0

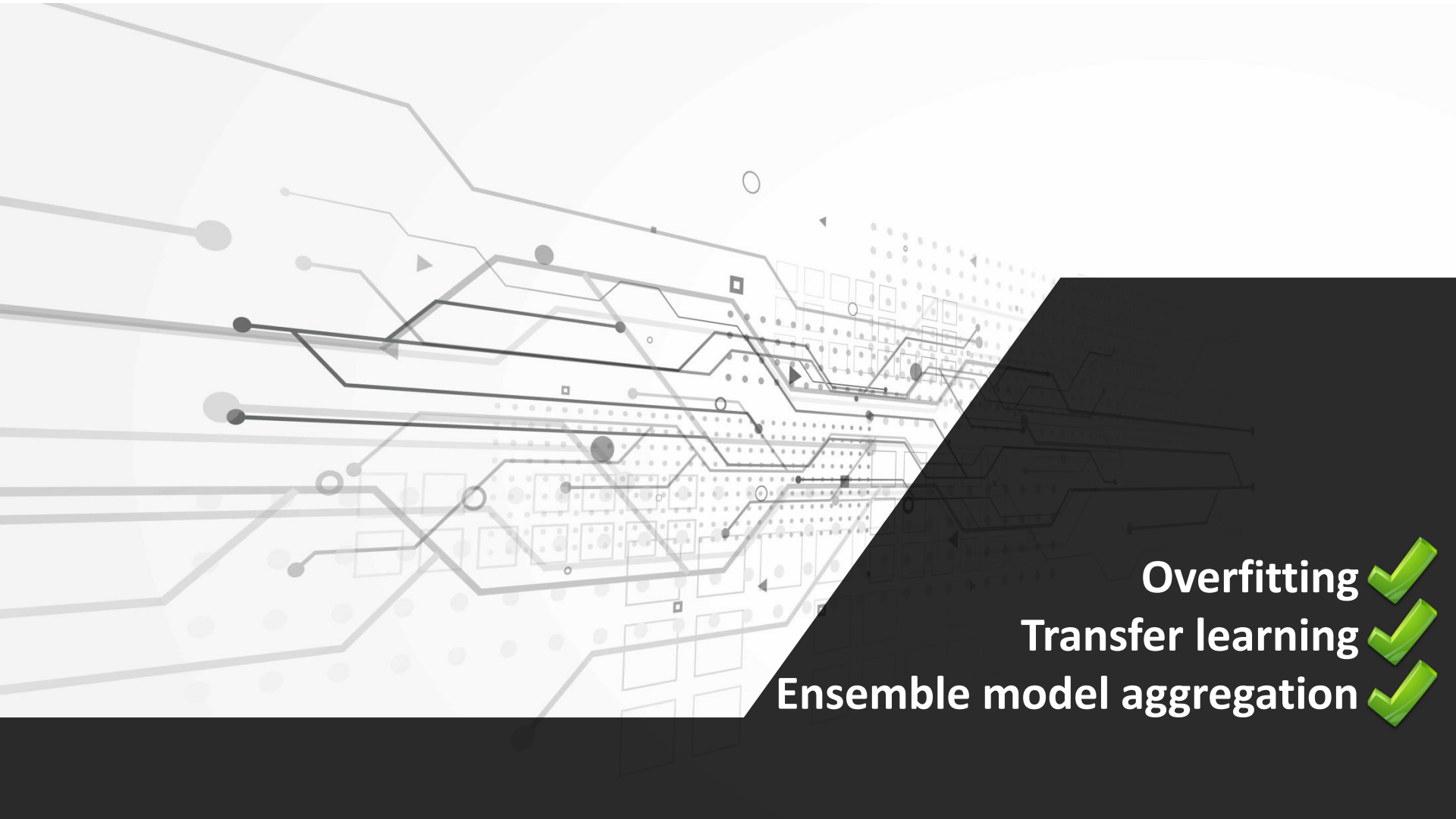


Ensemble Model Aggregation



The background features a complex, abstract design. It includes a dark, diagonal band on the left side, overlaid with white circuit-like lines and dots. To the right, a lighter area contains a grid of squares, some of which are filled with dots. Various geometric shapes, including circles, squares, and triangles, are scattered throughout, connected by thin, winding lines that suggest a network or data flow.

Federated learning



Overfitting ✓
Transfer learning ✓
Ensemble model aggregation ✓

An abstract graphic featuring a dark, diagonal band on the left side. The background is white with faint, light gray circuit-like lines and a grid of small squares. The word "Privacy" is written in white on the dark band.

Privacy



PBA Lille, Palais des Beaux-Arts, Photo J.M.Dautel - Own work



"Anonymous Protest - 15th March 2008 - Tottenham Court Road, London" by Paul Williams is licensed under CC

General Data Protection Regulations

- Consent
- Traceability and Auditing
- Access rights
- Storage
- Retention
- Right to be forgotten
- Procedures and training



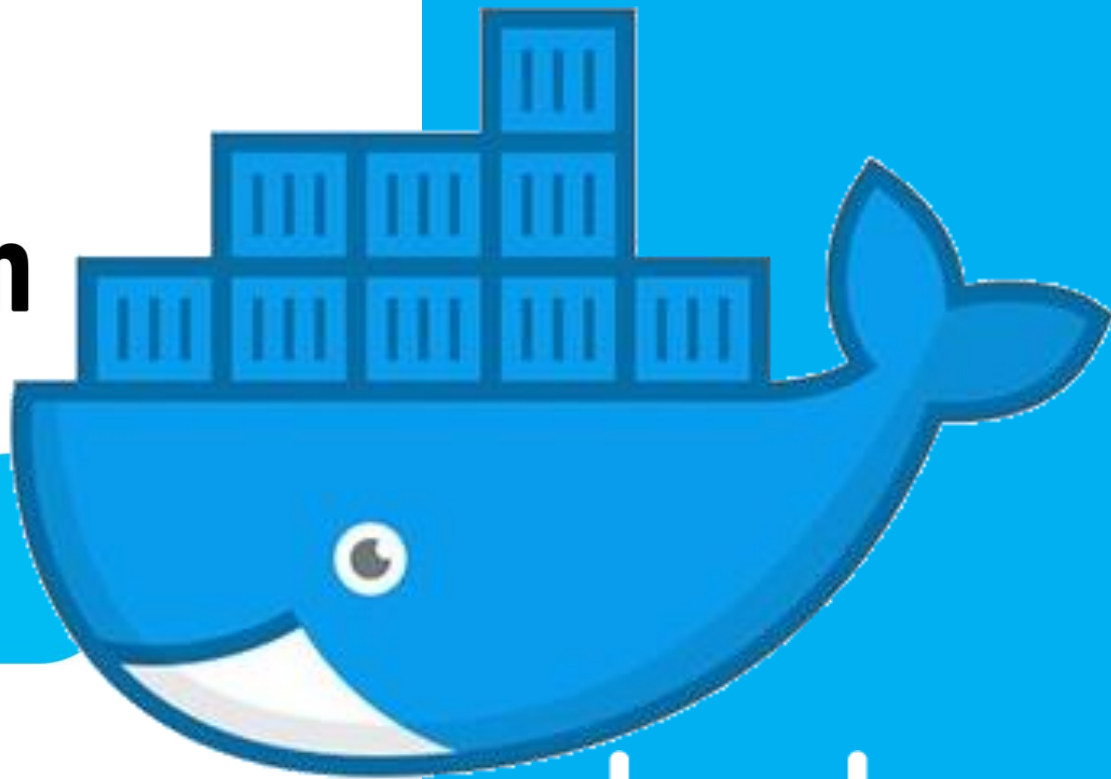
The background features a complex, abstract design. It includes a series of thin, grey lines that resemble circuit traces or data paths, some with small circles at their ends. These lines are overlaid on a light grey grid of squares. A large, dark grey, semi-transparent shape, resembling a stylized 'Z' or a folded piece of paper, cuts across the lower-left portion of the image. The text 'Cloud computing' is written in white on this dark shape.

Cloud computing



Google

amazon



docker®



An abstract graphic featuring a dark, diagonal band on the left side. The background is white with faint, light gray circuit-like lines and a grid of small squares. The word "Tagging" is written in white on the dark band.

Tagging



STEM Diversity at IBM

Video Length: 00:02:13

Transcription

[Edit transcription](#)[Copy transcription to clipboard](#)

The forefathers of IBM had the wisdom to employ our first black employee and three women in 1899, which was 10 years before the NAACP was founded 36 years after the Emancipation Proclamation Act and 20 years before women had the right to vote in the United States of America in 1953 Thomas Watson jr. Wrote a letter to the IBM management. He talked about the policy of our organization to hire the best talent regardless of race color or Creed. That is what we believe to be the first equal opportunity letter of the United States. I got into **technology** not just because it's cool and I'm a little bit of a geek but you know, I think it's the fact that I'm a woman it drives me to want to improve the world around me going to be yourself and IBM welcomes that because you have people from different countries or different genders and different backgrounds and That allows you to be yourself. My

Video tags

6

Black



Equal opportunity



Policy



Race



Talent



Women



Timestamp tags

0

Black



Equal opportunity



Policy



Race



Women



Text analytics

The background features a complex, abstract design. It includes a dark, diagonal shape on the left side, which serves as a backdrop for the title. Overlaid on this and the rest of the image are various geometric elements: thin, grey lines that resemble circuit traces or data paths, some ending in small circles or squares; a grid of small, light-grey squares that recedes into the distance on the right; and several larger, semi-transparent circles and squares scattered throughout the composition. The overall aesthetic is technical and futuristic.

“

The same technology that simplifies life by providing more functions in each device also complicates life by making the device harder to learn and harder to use.

Don Norman's "Paradox of Technology"

”



Privacy ✓

Cloud computing ✓

Tagging ✓

Text analytics ✓

Conclusion

The background features a complex, abstract design. On the left, a dark, diagonal band contains the word "Conclusion" in white. The rest of the image is filled with a light gray background overlaid with a network of thin, dark lines that resemble circuit traces or data paths. These lines intersect with a grid of small squares and circles, creating a sense of depth and connectivity. The overall aesthetic is technical and modern.





"Scale Model Of the Hampton Court Astronomical Clock At The Science Museum - London." by Jim Linwood is licensed under CC BY 2.0

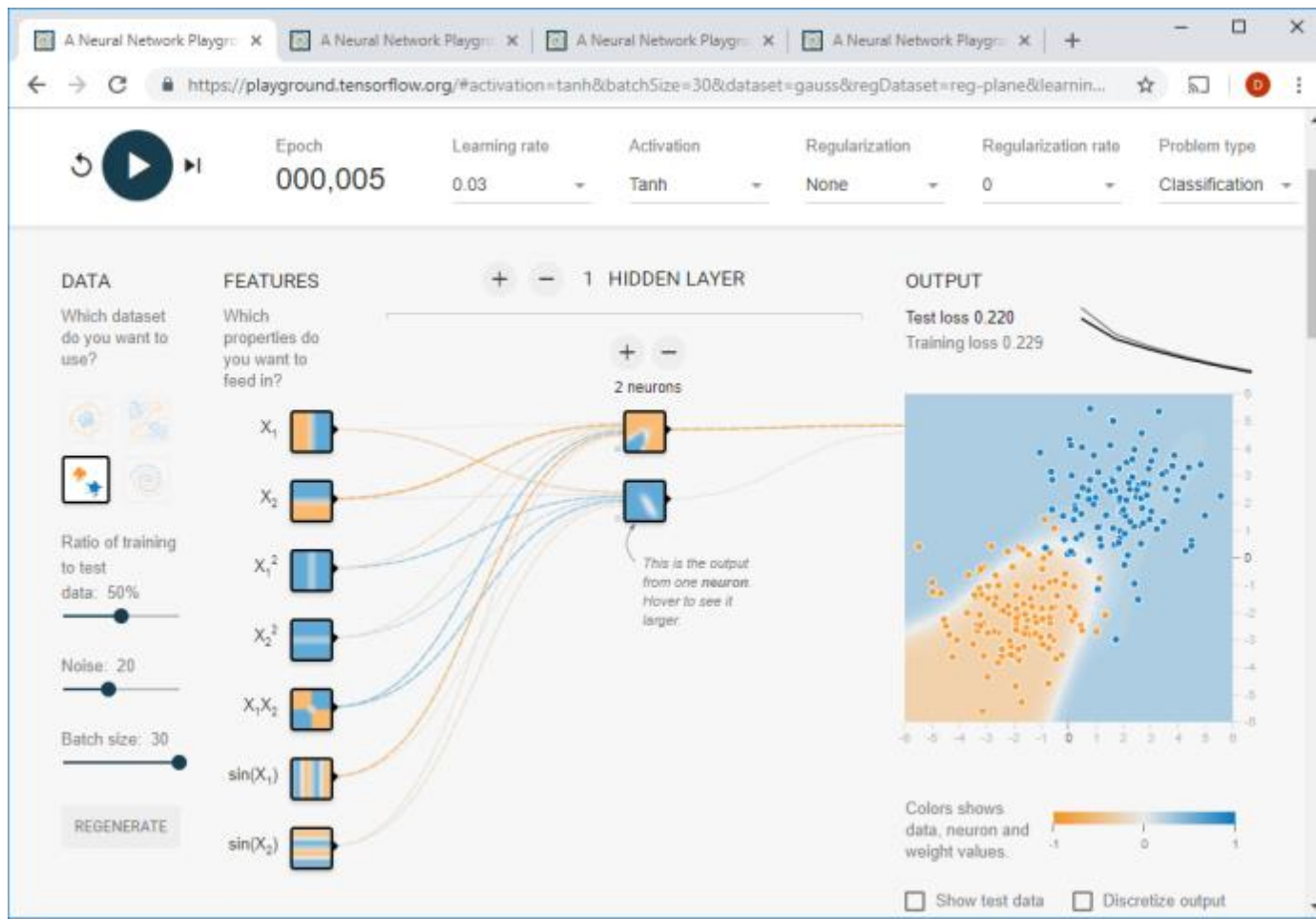
Summary

- AI can't replace humans for quality, but can massively reduce quantity.
- Plenty of cheap ready made AI components available just need plumbing together.
- Constant improvement to the state of the art mean agile businesses can outperform monoliths.
- If you don't want to be replaced by a spreadsheet, keep on micro learning every day.
- Wisdom of the crowd works with AI too, use several models and take the most confident results.
- Print out the Laws of AI, an ethical data scientist is a happy data scientist.

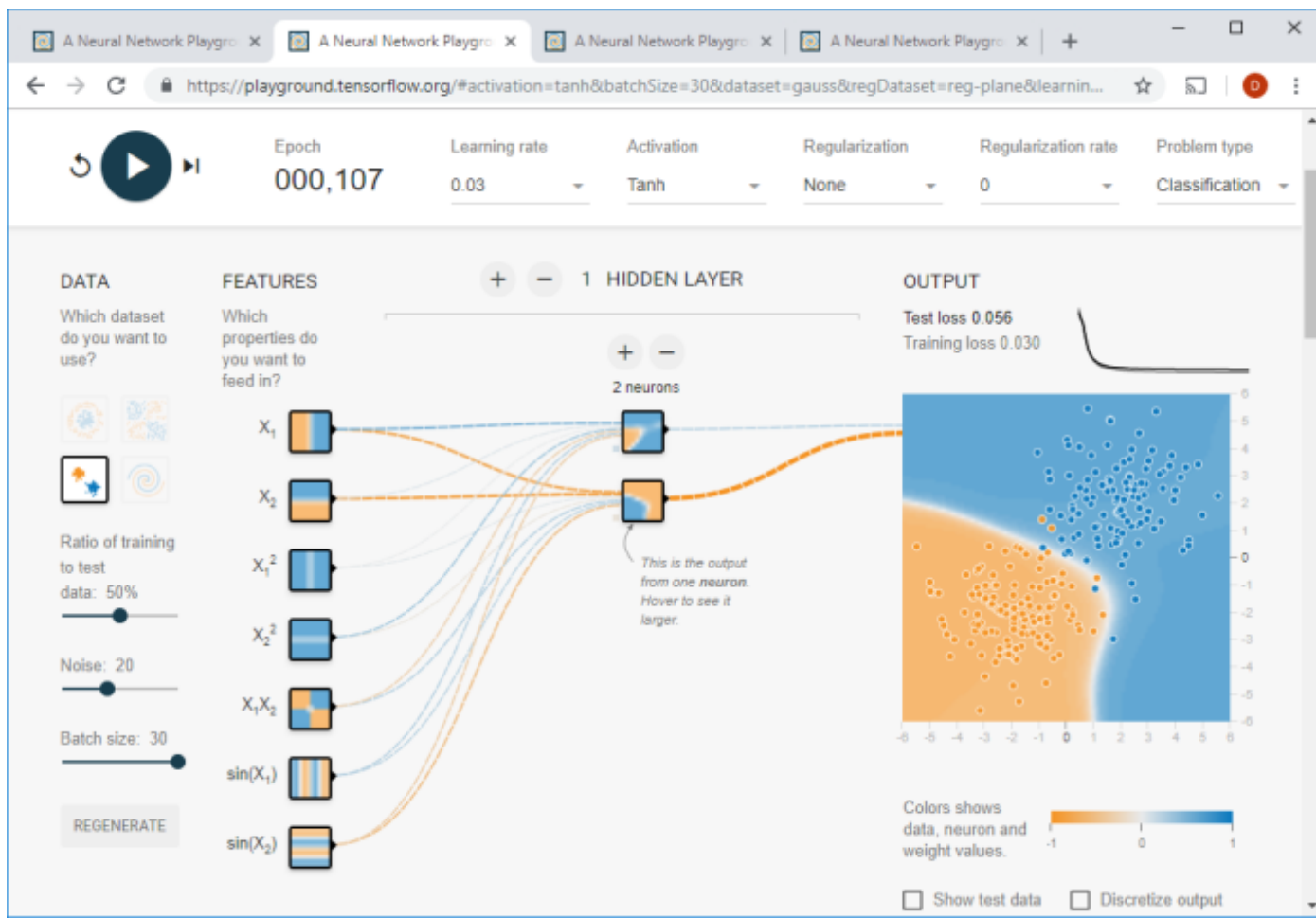
The background features a complex, abstract design. It includes a dark, diagonal band on the left side, overlaid with a network of thin, grey circuit-like lines. These lines branch out and connect various geometric shapes such as circles, squares, and triangles. To the right of this band, a light grey grid of squares is visible, with some squares containing small dots. The overall aesthetic is technical and digital, suggesting themes of data, technology, or artificial intelligence.

Overfitting

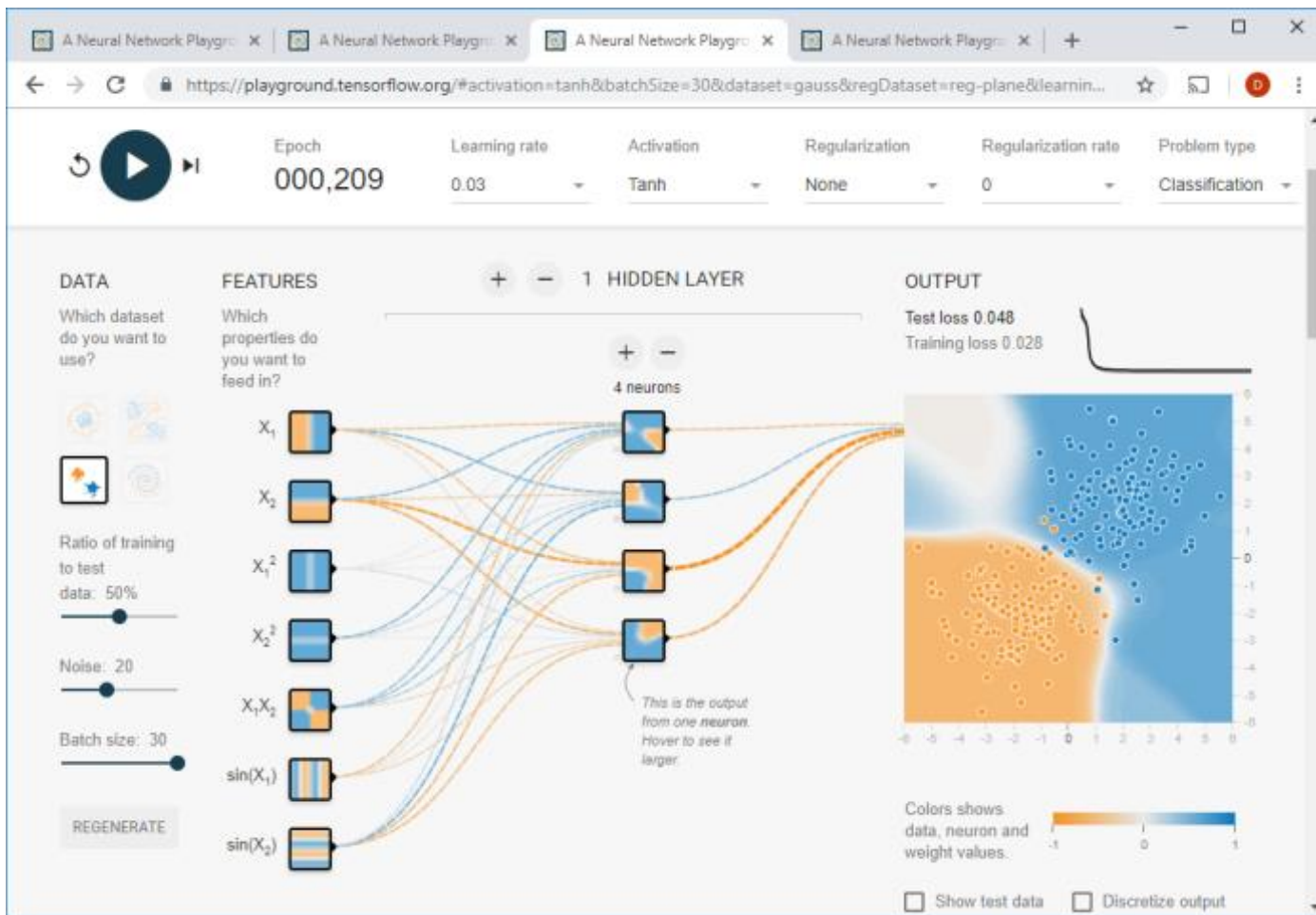
<https://playground.tensorflow.org>



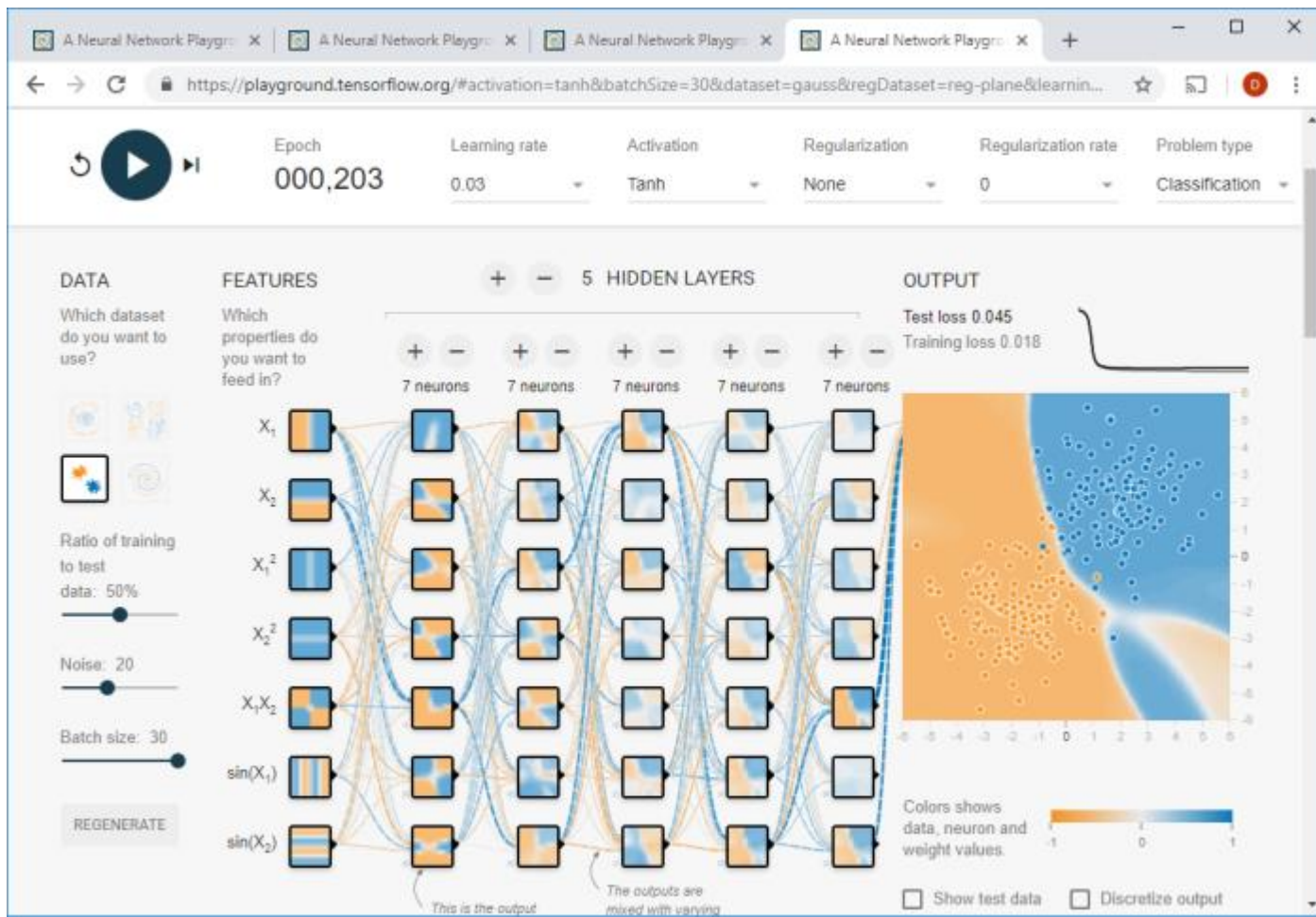
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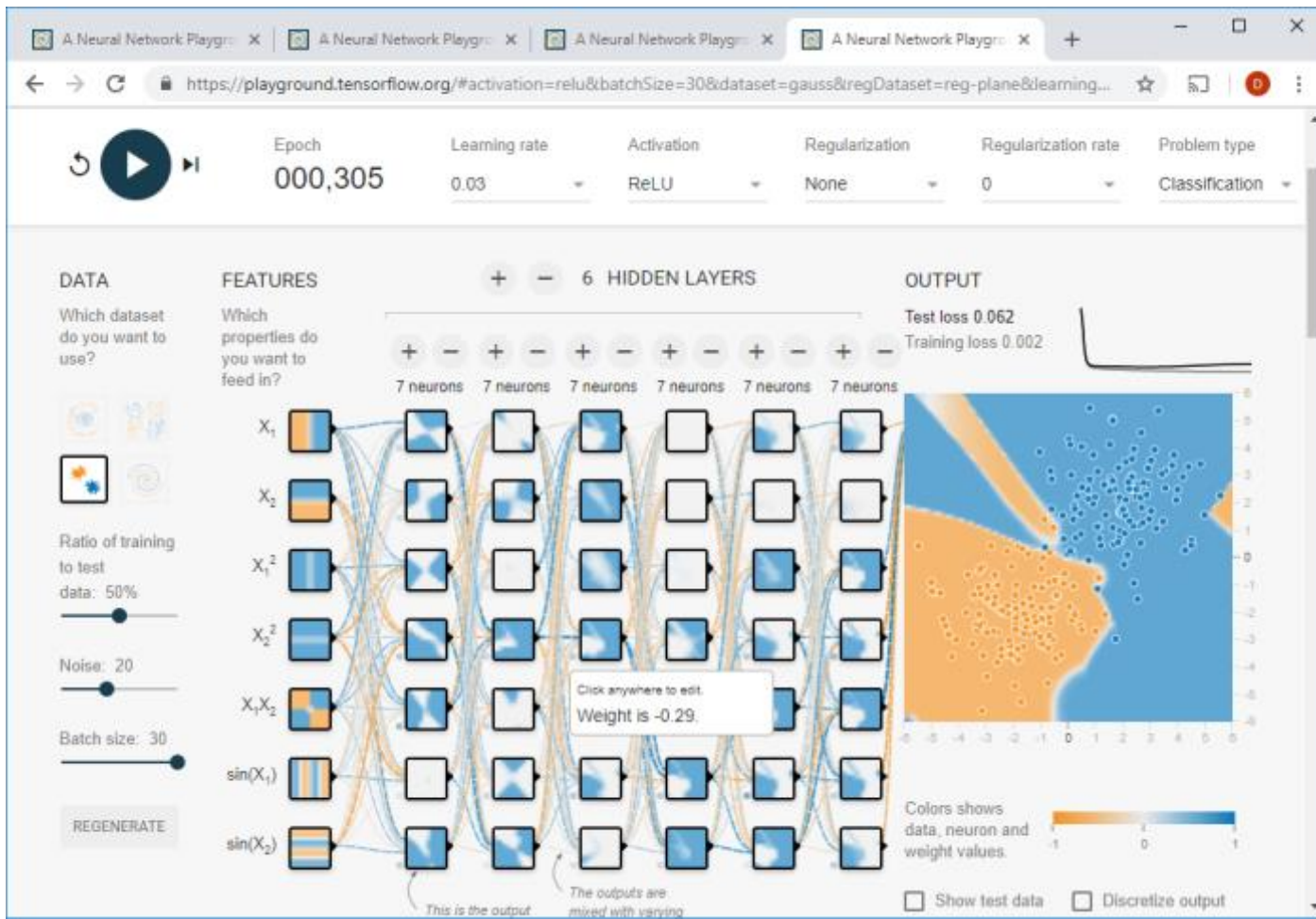
<https://playground.tensorflow.org>



<https://playground.tensorflow.org>



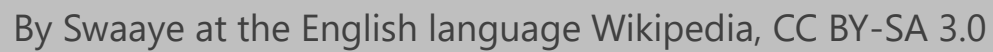
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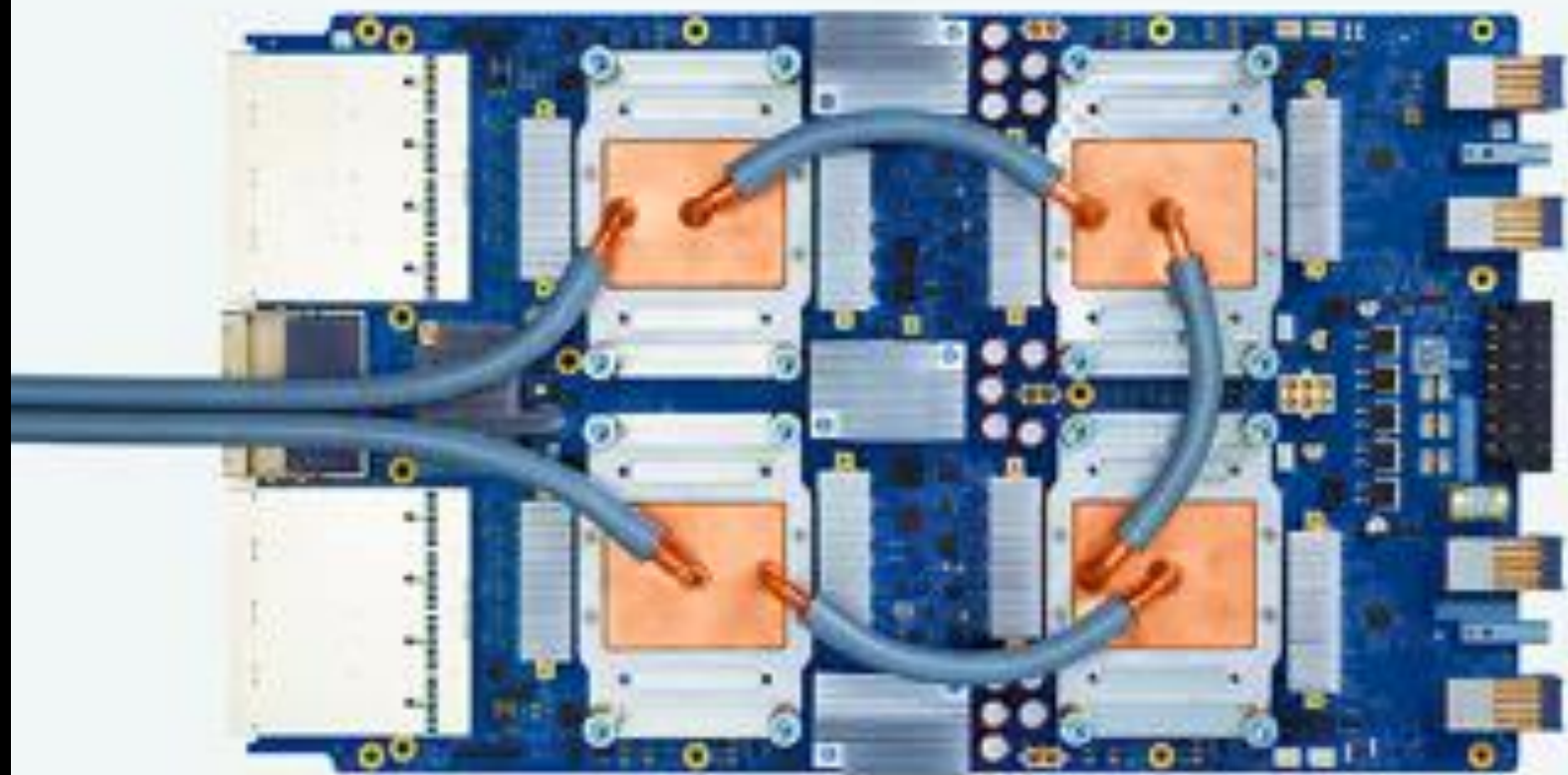


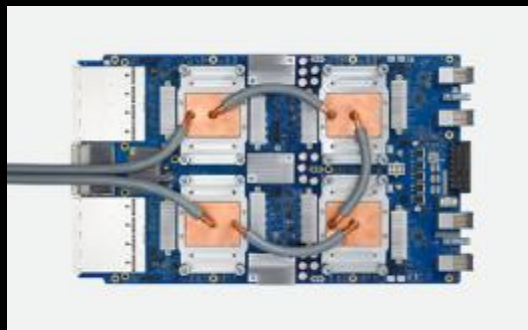
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**Hardware,
what do you need
to know?**







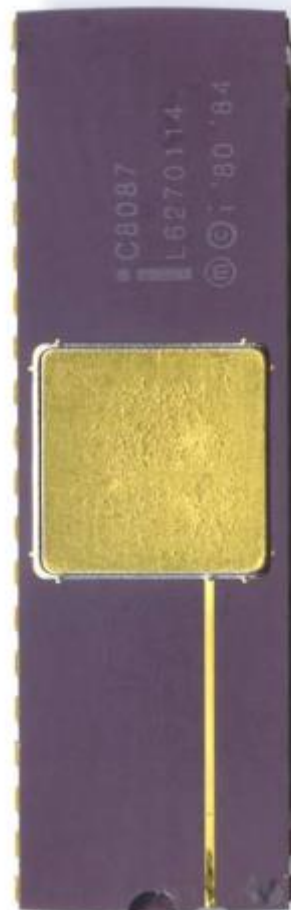


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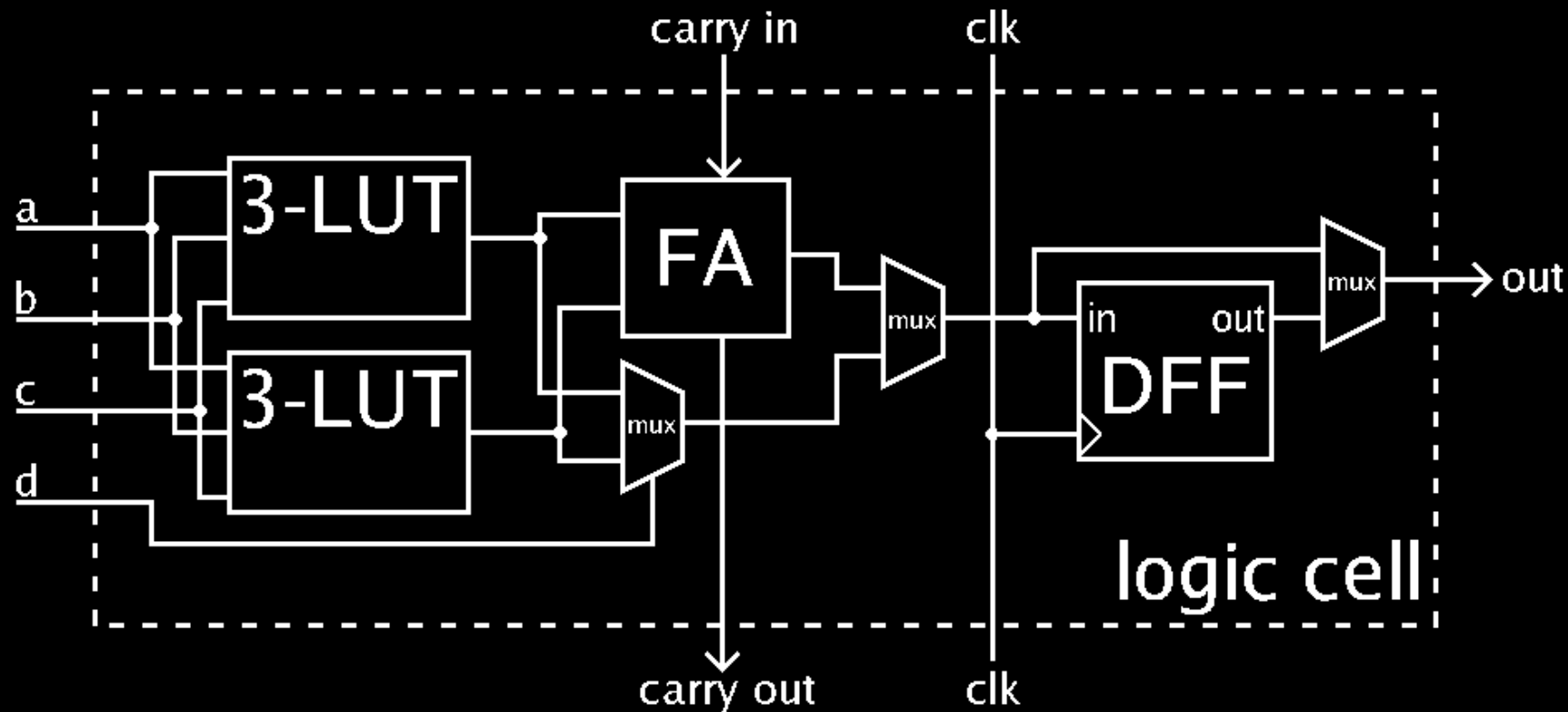


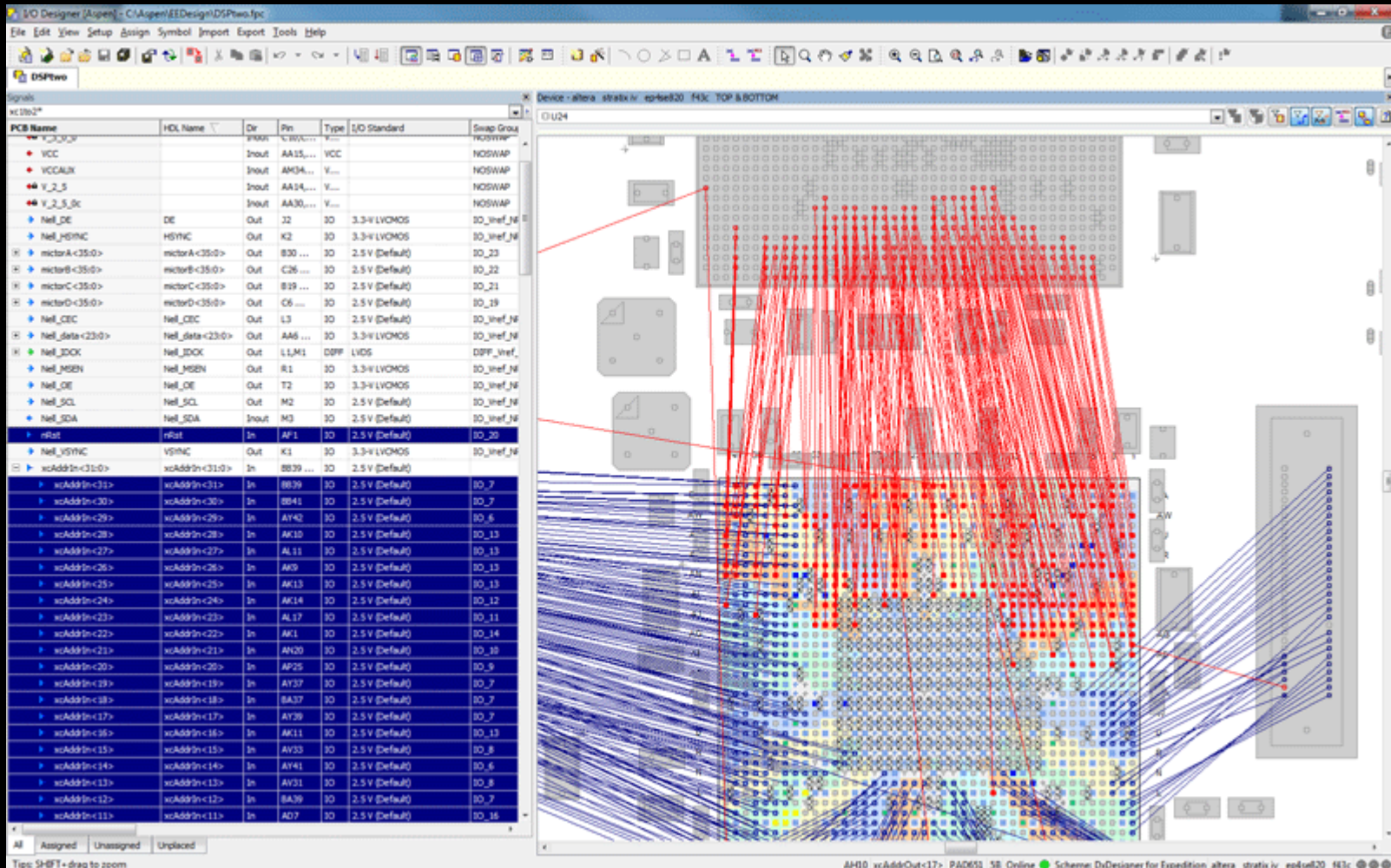
1 TPU=420 CPU

(GND) VSS	1	Intel 8087	40	VCC
A14/D14	2		39	A15/D15
A13/D13	3		38	A16/S3
A12/D12	4		37	A17/S4
A11/D11	5		36	A18/S5
A10/D10	6		35	A19/S6
A9/D9	7		34	-BHE/S7
A8/D8	8		33	-RQ/-GT1
A7/D7	9		32	INT
A6/D6	10		31	-RQ/-GT0
A5/D5	11		30	NC
A4/D4	12		29	NC
A3/D3	13		28	-S2
A2/D2	14		27	-S1
A1/D1	15		26	-S0
A0/D0	16		25	QS0
NC	17		24	QS1
NC	18		23	BUSY
CLK	19		22	READY
(GND) VSS	20		21	RESET



One FPGA Cell



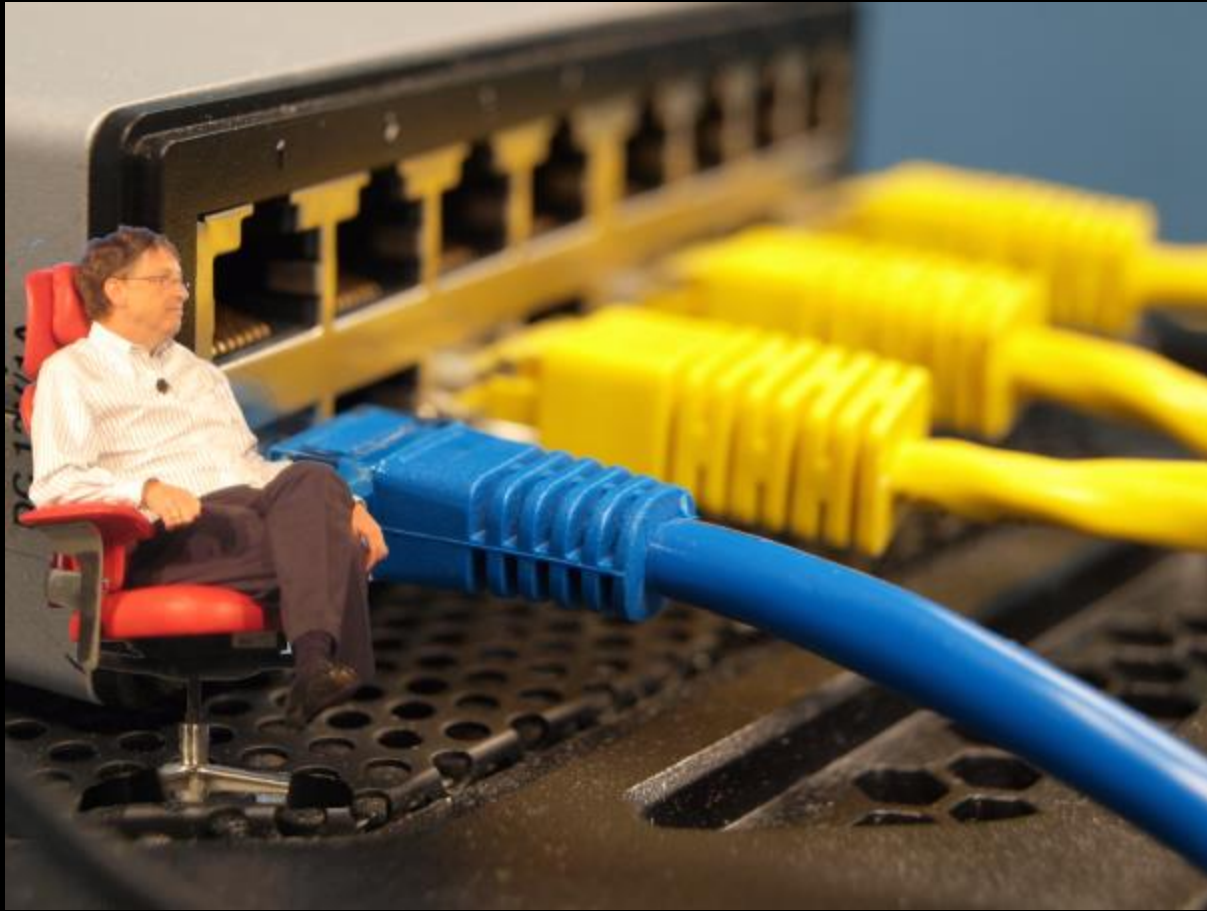




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