

The background is a dark gray field overlaid with a complex, interconnected network of thin, light brown lines. These lines form a series of irregular polygons, creating a mesh-like or web-like structure that spans the entire frame. The lines vary in orientation and length, giving the impression of a dynamic, organic network.

Artificial Intelligence

AS HUMAN AS HUMANS

Who dis boi

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Overview

Why even start?

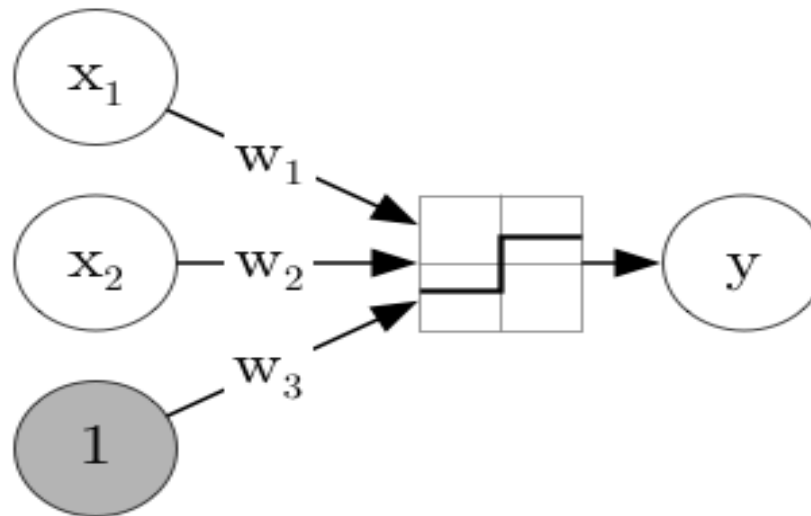
Why not something else?

Why is it worth it?

The humble beginnings

Input and output – how do **we** do it?

Imitate humans using computers – but what **is** a human?



Achievements

Computers **can** learn!

Very limited power

- a lot of prerequisites
- modest capabilities
- limited by computational capability

Still a big step forward, humanity keeps working on it

Turning the tides

End of the 2010's

- Moore's law causes sufficiently powerful hardware to be available for low prices
- internet provides free knowledge to a large amount of people
- bigger number of researchers gain access to machine learning
- lots of unapplied research is available
- investments from large companies

Beginning of 2020's

- most popular algorithms become available to the general public, consumers have almost full access

What we currently don't suck in

Image

- almost perfect detection of objects
- 90-95% accuracy on non-exotic classification
- promising visual generation results

Text

- near-perfect artifact detection
- respectable semantic comprehension
- promising text comprehension and generation

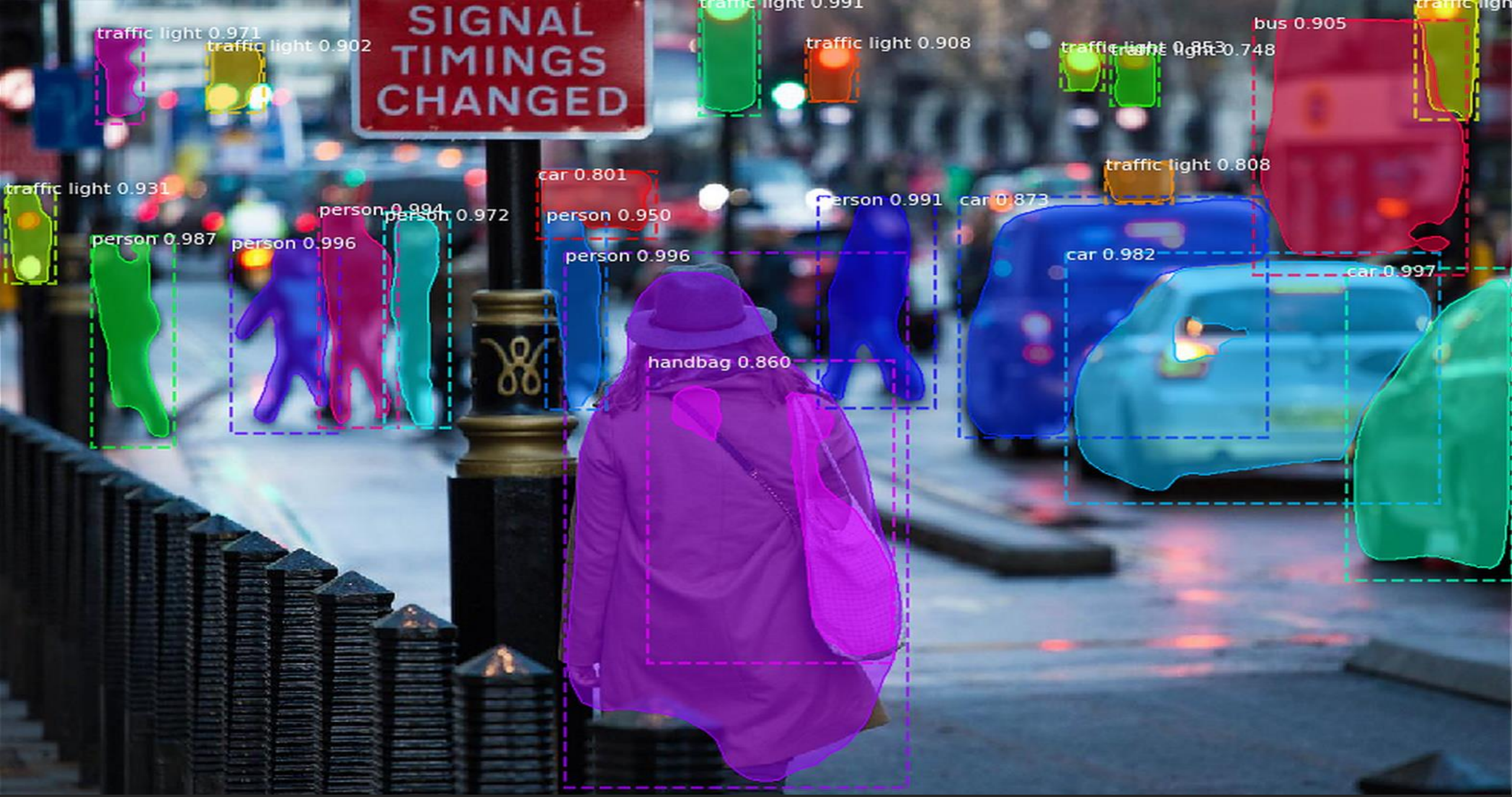


Figure 2: Mask R-CNN

<https://towardsdatascience.com/mask-r-cnn-for-self-driving-cars-7d254f3c7b3a>

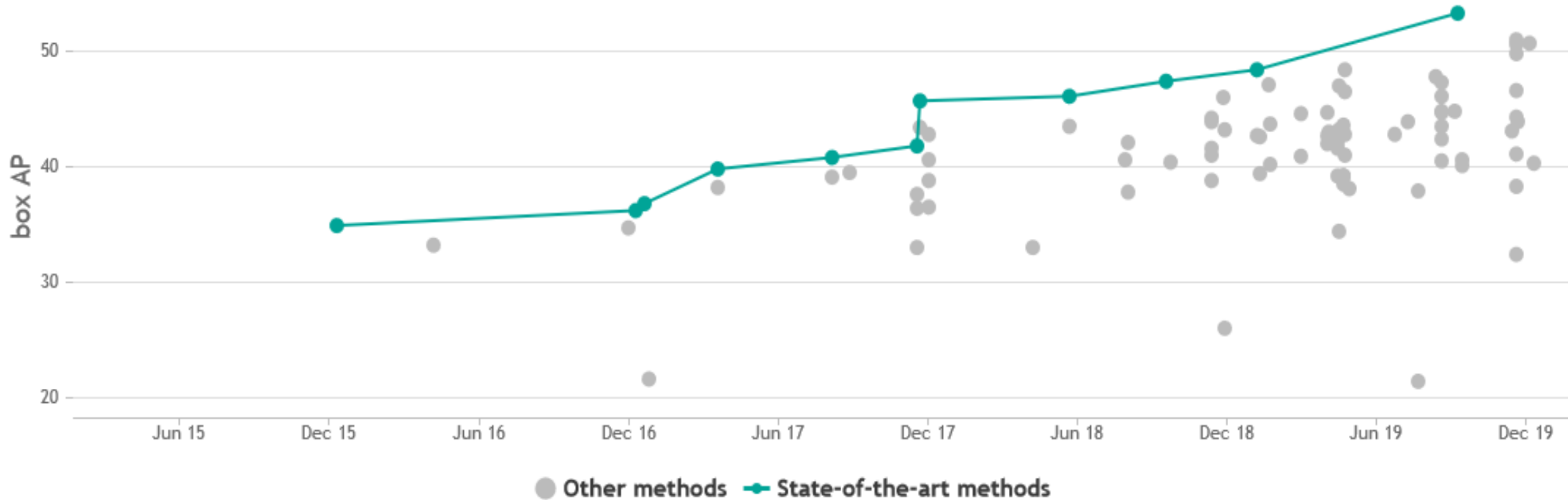


Figure 3: Progress on COCO

F.B.I. Agent **Peter Strzok PERSON**, **Who Criticized Trump PERSON** in Texts, Is **Fired GPE** - **The New York Times ORG** SectionsSEARCHSkip to contentSkip to site indexPoliticsSubscribeLog InSubscribeLog InToday's **PaperAdvertisementSupported ORG** byF.B.I. Agent **Peter Strzok PERSON**, **Who Criticized Trump PERSON** in Texts, Is FiredImagePeter Strzok, a top **F.B.I. GPE** counterintelligence agent who was taken off the special counsel investigation after his disparaging texts about President **Trump PERSON** were uncovered, was fired. **CreditT.J. Kirkpatrick PERSON** for **The New York TimesBy Adam Goldman ORG** and **Michael S. SchmidtAug PERSON**. **13 CARDINAL**, **2018WASHINGTON CARDINAL** — **Peter Strzok PERSON**, the **F.B.I. GPE** senior counterintelligence agent who disparaged President **Trump PERSON** in inflammatory text messages and helped oversee the **Hillary Clinton PERSON** email and **Russia GPE** investigations, has been fired for violating bureau policies, Mr. **Strzok PERSON**'s lawyer said **Monday DATE**.Mr. Trump and his allies seized on the texts — exchanged during the **2016 DATE** campaign with a former **F.B.I. GPE** lawyer, **Lisa Page — in PERSON** assailing the **Russia GPE** investigation as an illegitimate “witch hunt.” Mr. **Strzok PERSON**, who rose over **20 years DATE** at the **F.B.I. GPE** to become one of its most experienced counterintelligence agents, was a key figure in **the early months DATE** of the inquiry.Along with writing the texts, Mr. **Strzok PERSON** was accused of sending a highly sensitive search warrant to his personal email account.The **F.B.I. GPE** had been under immense political pressure by Mr. **Trump PERSON** to dismiss Mr. **Strzok PERSON**, who was removed **last summer DATE** from the staff of the special counsel, **Robert S. Mueller III PERSON**. The president has repeatedly denounced Mr. **Strzok PERSON** in posts on **Twitter EVENT**, and on **Monday DATE** expressed satisfaction that he had been sacked.Mr. **Trump's ORG** victory traces back to **June DATE**, when Mr. **Strzok PERSON**'s conduct was laid out in a wide-ranging inspector general's report on how the **F.B.I. GPE** handled the investigation of **Hillary Clinton's PERSON** emails in the run-up to the **2016 DATE** election. The report was critical of Mr. **Strzok PERSON**'s conduct in sending the

Figure 4: Named Entity Recognition

What is good, but could be better

Market prediction

- generally proven to work, but models lack the capacity
- today's economy is **hard**: cryptocurrencies, US tensions, EU instability
- markets are volatile

Acoustics

- solid detection, classification, prediction
- clunky music generation
- almost no, if any art comprehension; neural networks find it hard to remember complex structures*
- low interest

Interested?

You can find scholarly articles on price prediction almost anywhere

My recommendations:

- Kopernio
- ArXiv Sanity Preserver

Acoustics

- Performance RNN*

What is worse than you might think

Mechanics

- knowledge is too specific to be good for neural networks, too vast for rule based controllers
- difficulties punish the AI system greatly
- **big** industry focus (cars, n-pedal robots, transhumanism)

Game playing

- too difficult to emulate a human with current resources
- experienced players can exploit machines **easily**
- interesting games have deep, hidden rules not even humans understand

Medicine

- useful but not nearly enough resources to unleash the full potential

The future – not

Skynet

Slaves (both ways)

Omnisentience

Androids

AI – a race different from ours

The real future

Brain-wave image reconstruction – [preprint](#)

Brain-machine interface – [Neuralink](#) – human trials beginning in a few months

Seamless text generation – [GPT-2](#) – available to the general public

- you can check it out [here](#) (<https://talktotransformer.com/>)

Real time translation (for all languages) – [Google Assistant](#) – available to the general public

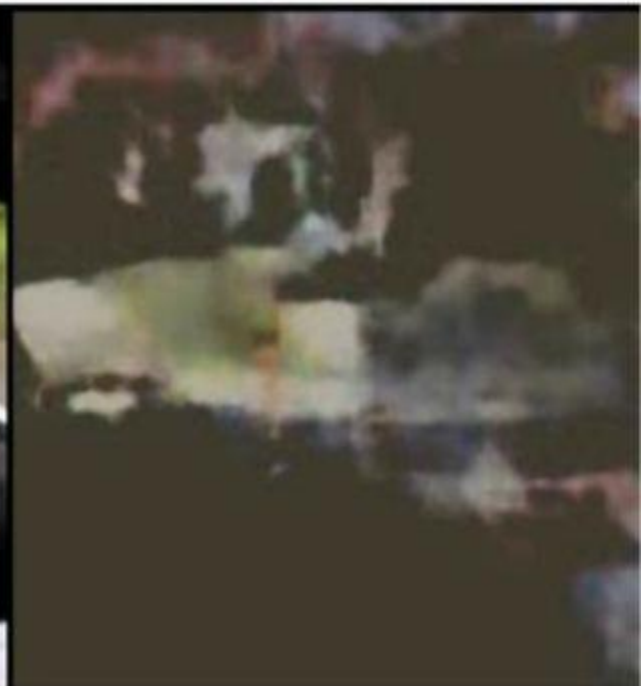
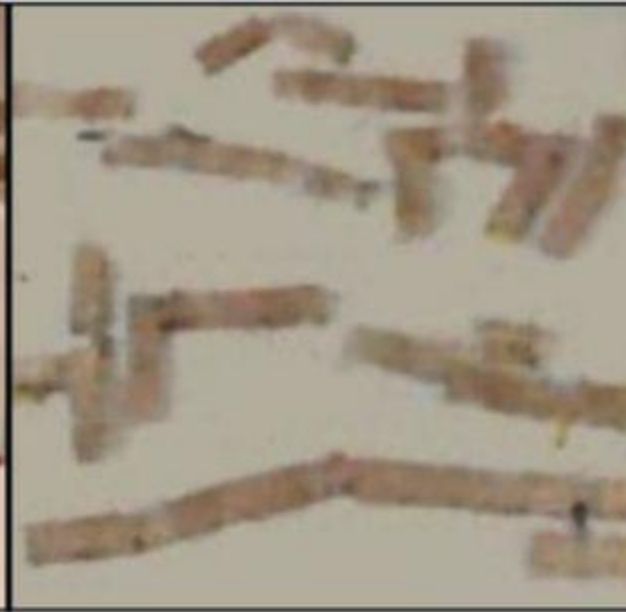


Figure 5: Brain-wave image reconstruction

THE NEURAL CODE

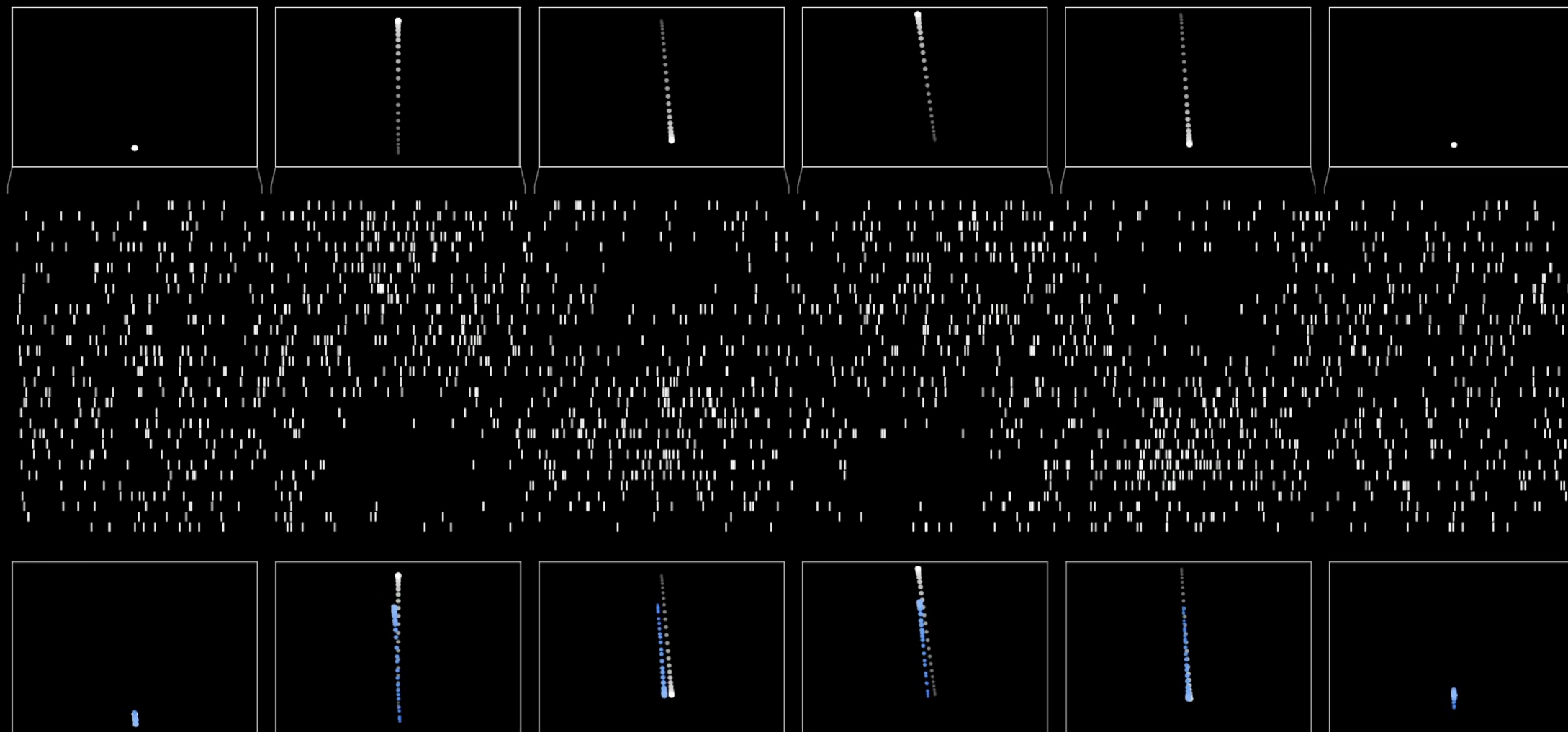


Figure 6: Decoding brain waves

<https://www.youtube.com/watch?v=r-vbh3t7WVI>

Thank you for participating!

For anyone interested, the presentation can be found at <https://github.com/Yalfoosh/EJUIP>

If you have any questions, contact me at miljenko.suflaj@fer.hr or ms50144@fer.hr and I'll do my best to get back to you as quickly as possible!