

**SUPERHEROES  
OF DEEP LEARNING**

#2



# MACHINE LEARNING FOR HEALTHCARE

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PARENTAL  
**ADVISORY**  
SATIRICAL CONTENT

# EPISODE II

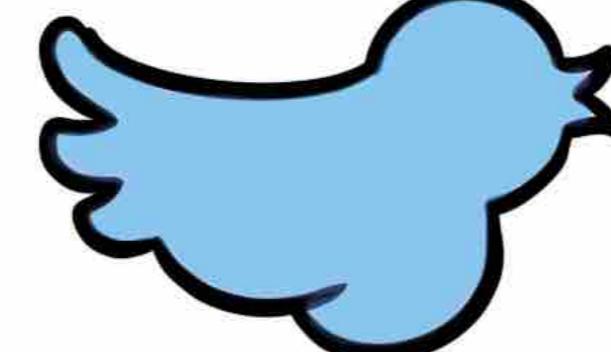
**THE YEAR IS 2021.  
A SELF-REPLICATING 0.12 MICRON  
PROTEIN HAS TAKEN THE WORLD  
HOSTAGE AND INCONVENIENCED MILLIONS  
OF CONSERVATIVE POLITICIANS, WHO  
SUDDENLY CARE ABOUT CIVIL LIBERTIES.**

**FLUSH WITH CASH AND DEEP MINDS, THE  
AI ILLUMINATI HAVE CONVENED A GREAT  
CONFERENCE TO CONFRONT THEIR  
COMMON FOE.**

MEANWHILE, SPURNED  
BY THE ML ELITE,

DAG-MAN DE-STRESSES ON  
A CALIFORNIA BEACH WITH  
SOME SUNNIES AND FUNNIES...

TRANSLATION PLEASE?  
I GREW UP WITH  
POPEYE AND LITTLE  
RED RIDING HOOD...



SOMEWHERE IN WESTCHESTER COUNTY...



ALL THE Factions OF THE  
ML Multiverse HAVE ASSEMBLED...

THE ALGORITHMIC JUSTICE LEAGUE

THE CAUSAL CONSPIRATORS

THE RIGOR POLICE

THE SYMBOL SLAPPERS

AND OF COURSE,  
**THE DL SUPERHEROES**



HOW DID THE SUPERHEROES AFFORD THIS PLACE?

WAS THE ELEMENT AI ACQUIRE MORE LUCRATIVE THAN WE THOUGHT?

I HEARD CAPTAIN CONVOLUTION GOT IN EARLY ON GAMESTOP!

SHHH... HE'S ABOUT TO SPEAK...

DON VALIANT,  
DONNA BOULAMWINI,  
GANFATHER...

I LOOK AROUND,  
AND I SEE A LOT OF FAMILIAR FACES...

IT'S NOT EVERY DAY THAT WE GATHER THE ENTIRE FAMILY UNDER ONE ROOF.

WE UNITE HERE TODAY AND PUT ASIDE OUR DIFFERENCES,

BECAUSE A GATHERING THREAT IMPERILS OUR COMMON INTERESTS.


YOU MAY ALREADY KNOW...

CONFOUNDING?

THE CURSE OF  
DIMENSIONALITY?

INJUSTICE?

SCHMIDHUBERING?



**REPENT!**

I AM TALKING ABOUT THE  
GREATEST THREAT EVER  
TO IMPERIL OUR NOBLE  
STRUGGLE TO CREATE  
INTELLIGENCE IN SILICO...

SEVERE ACUTE RESPIRATORY  
SYNDROME CORONAVIRUS  
SARS-COV-2!





BUT JUST TO BE SAFE,  
AND IN THE SPIRIT OF  
INTERDISCIPLINARITY,  
WE INVITED THE NATION'S  
TOP INFECTIOUS DISEASE  
EXPERT—

DR. ANTHONY  
FAUCI!

LISTEN TO ME,  
I KNOW YOU  
ALL ARE  
SUPERHEROES,

BUT YOU SHOULD  
ALL BE WEARING  
MASKS!


AND YOU  
SHOULD ALL  
GO HOME!

I CAN'T BELIEVE I  
AGREED TO SHOW  
UP HERE...

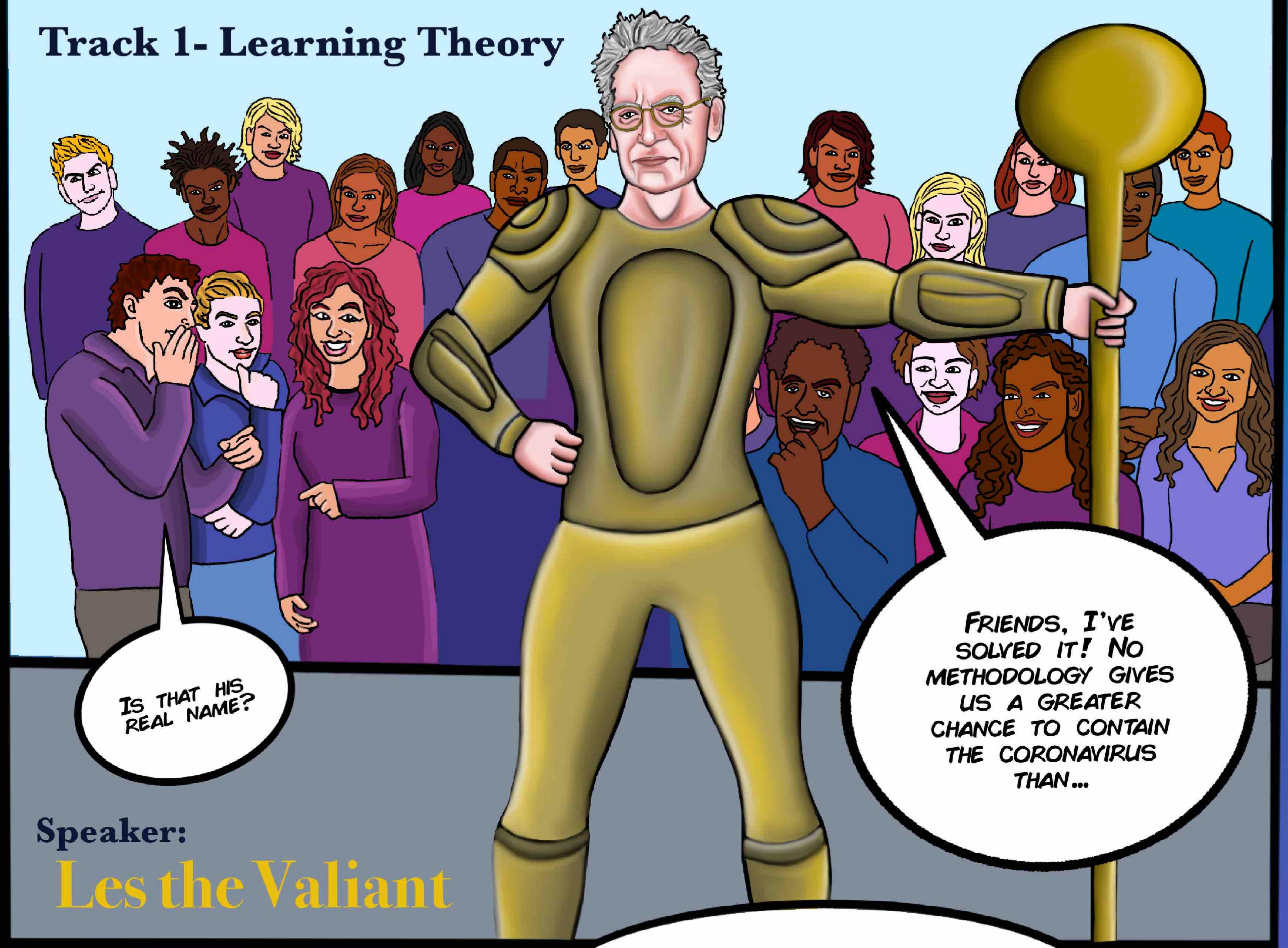
THIS IS A  
SUPERSPREADER  
EVENT!

BUT, THE GODFATHER  
CAN BE VERY  
PERSUASIVE...





## Track 1- Learning Theory



Speaker:

**Les the Valiant**



$$P\left(\left|E_{in}(\text{cov}) - E_{out}(\text{cov})\right| > \epsilon\right) \leq 4m_2/2N e^{-\frac{1}{8}\epsilon^2 N}$$



CENTERED AT  
THIS POINT.

AND WITH A RADIUS  
LESS THAN OR EQUAL  
TO  $\epsilon$ !



3 WEEKS LATER...

IS IT  
WORKING  
YET?

YES, MY CHILD. IT IS  
GUARANTEED TO WORK! THE  
BOUND OBTAINS FROM THE VERY  
AXIOMS OF MATHEMATICS!

UHM... WHY  
ARE PEOPLE  
STILL GETTING  
SICK?

$\epsilon$

Possibly a lot of coronavirus  
probably no coronavirus

WELL, ...IN PRACTICE... THE  
SMALLEST  $\epsilon$  THAT  
WE CAN GUARANTEE WITH  
HIGH PROBABILITY IS  
1000000000 METERS



COFFEE BREAK

HEY COUNT VAPNIK!  
YOU GOING TO THE  
DEEPMIND PARTY?

NOT INVITED.

YOU MUST BE  
SHATTERED!

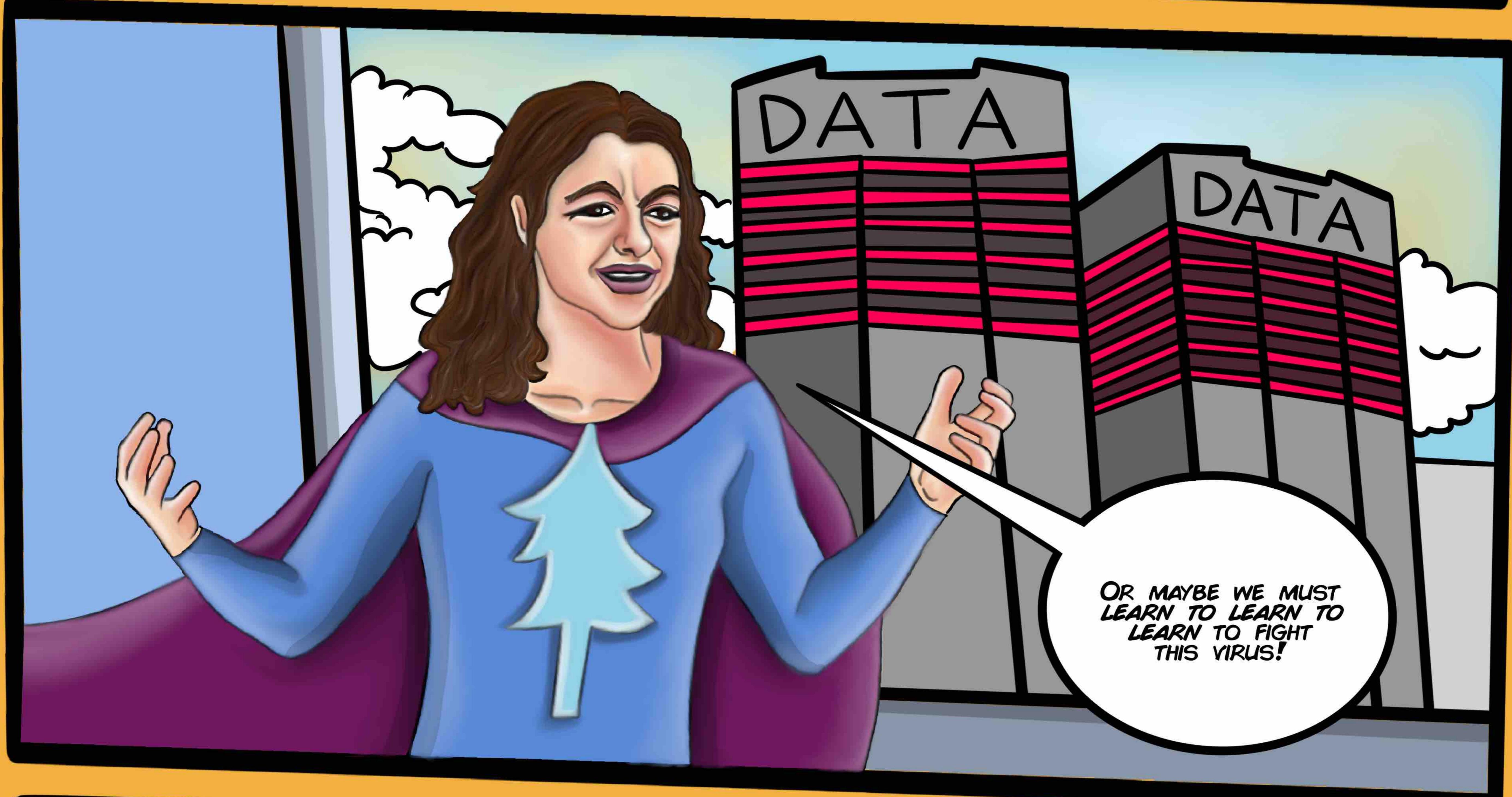
HISSS

Track 2  
Meta Learning  
Speaker:  
**Iris**

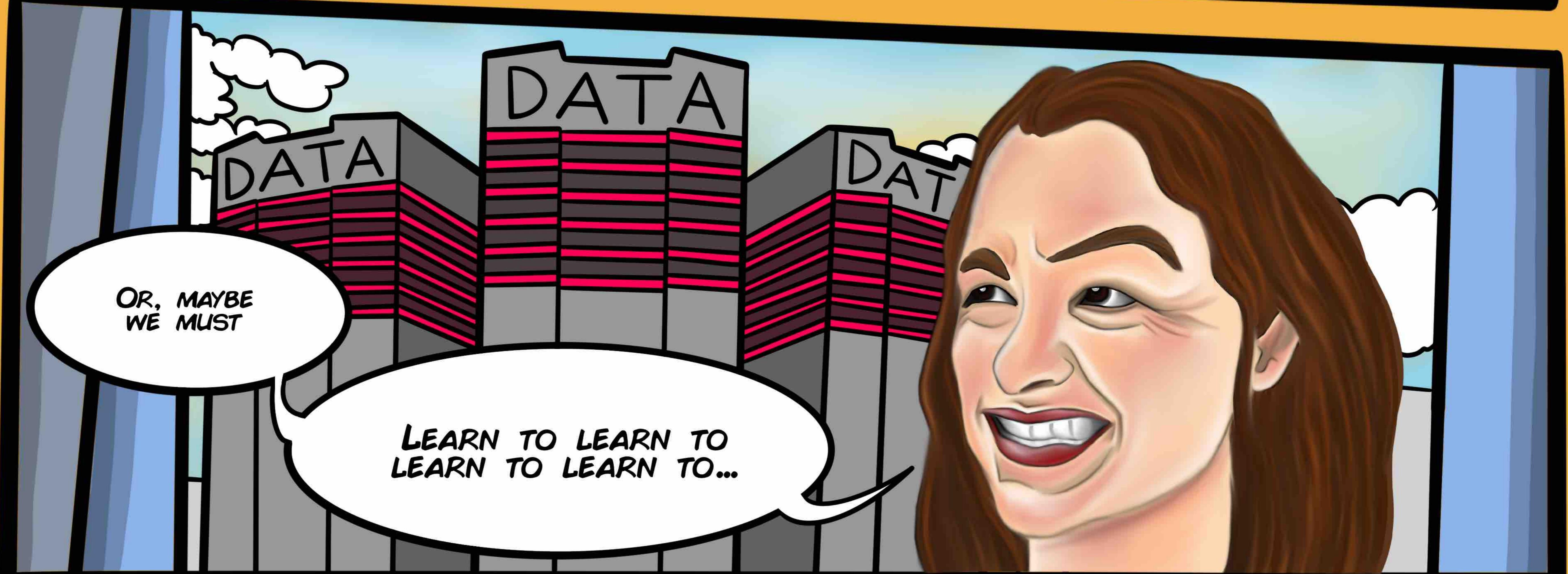


IT'S NOT ENOUGH  
TO LEARN TO  
FIGHT THIS VIRUS...

WE MUST LEARN  
TO LEARN TO  
FIGHT THIS VIRUS!



OR MAYBE WE MUST  
LEARN TO LEARN TO  
FIGHT THIS VIRUS!



OR, MAYBE  
WE MUST

LEARN TO LEARN TO  
LEARN TO LEARN TO...

AN HOUR LATER...



I'VE GOT IT!

WE MUST LEARN TO  
LEARN TO LEARN  
TO LEARN TO  
LEARN TO...

LEARN TO LEARN  
TO LEARN TO  
LEARN TO

LEARN TO LEARN TO  
LEARN TO LEARN TO  
LEARN TO LEARN TO  
LEARN TO LEARN TO

LEARN TO LEARN  
TO LEARN TO LEARN TO  
LEARN TO LEARN TO  
LEARN TO LEARN TO  
LEARN TO...

DATA

DATA

DA

BOOM

BY THE POWER OF METALEARNING,  
WE CAN LEARN FROM PAST PANDEMICS  
TRANSFERRING THAT EXPERIENCE  
TO GUIDE THE COVID19 RESPONSE!

UHM HELLO...  
EXPERIENCED  
METALEARNER,  
RIGHT HERE.



...MAYBE THEY'D TAKE ME  
MORE SERIOUSLY  
IF I CHANGED MY NAME  
TO DINOSAUR?



ROAR



POSTER SESSION

HEY BRUTE FORCE!  
ARE YOU GOING TO THE  
ANTHROPIC AI PARTY?

I AM NOT  
OPEN TO IT!

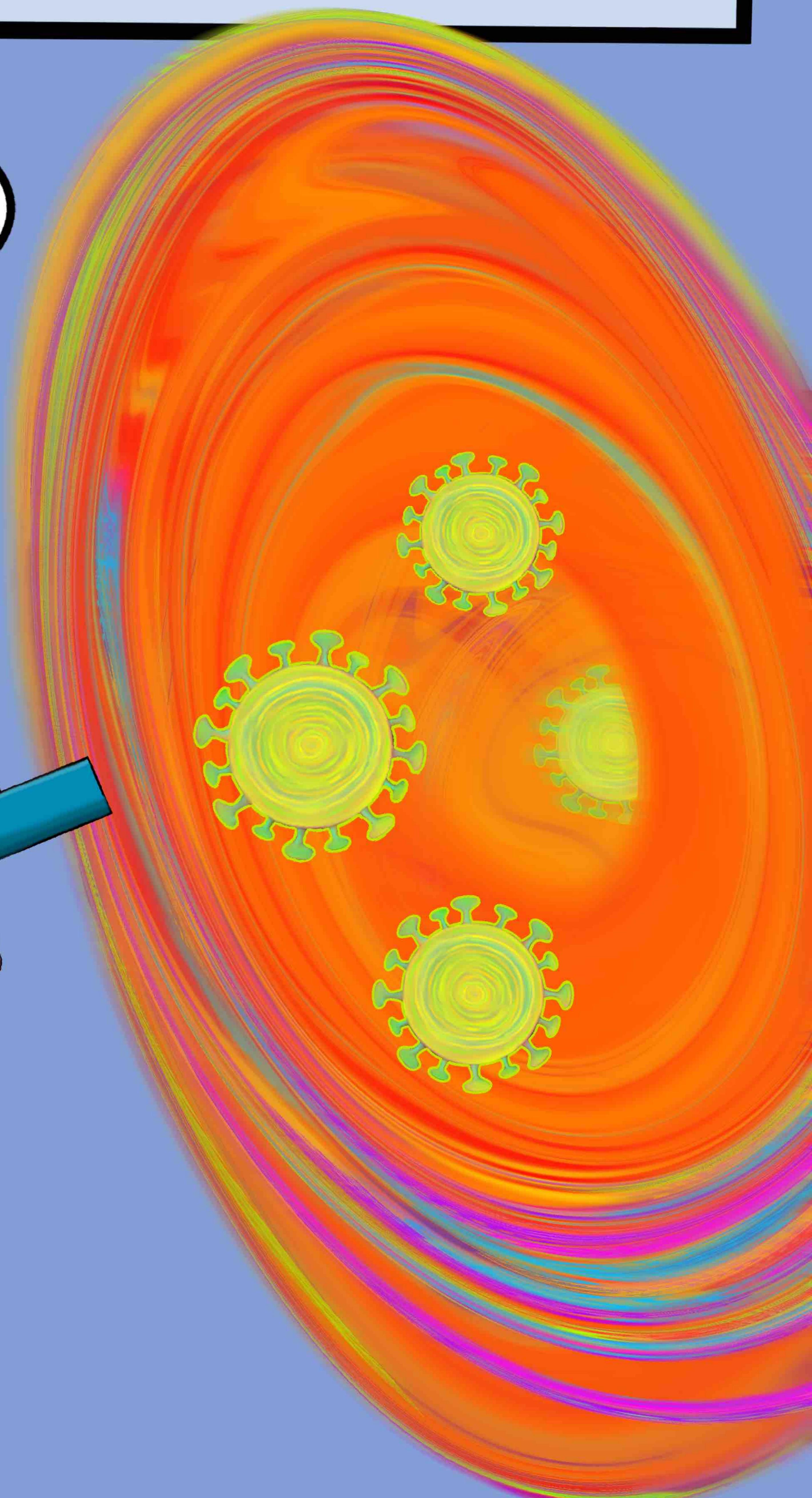
## Track 3- Kernel Methods


Speaker: Kernel Scholkopf



YOU SEE, THESE VIRUSES  
CAN BE ELLUSIVE TARGETS,  
PACKED ALL TOGETHER IN  
THIS PUNY 3D SPACE.

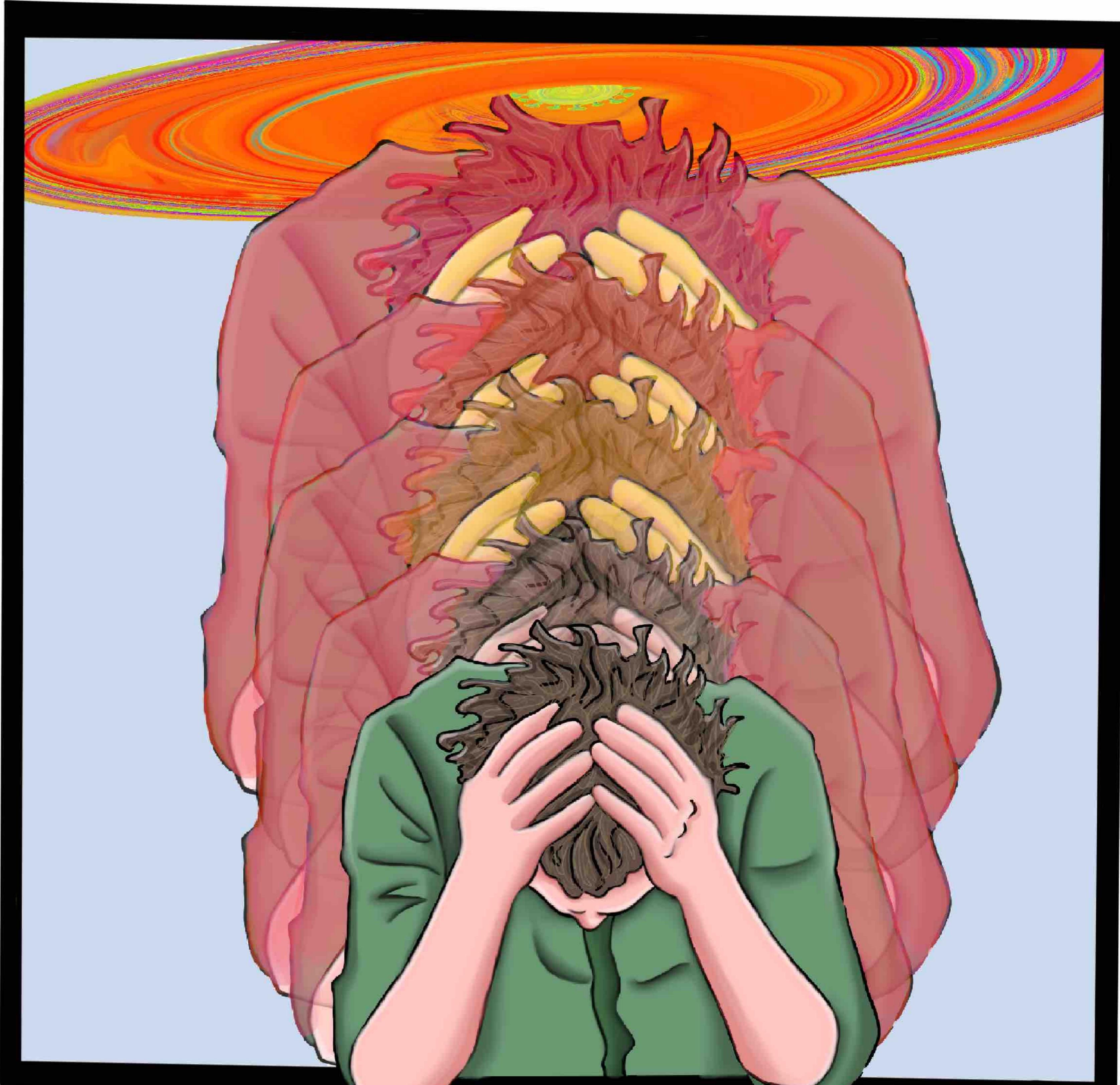
HOWEVER, AFTER MY KERNEL MACHINE  
PROJECTS THE VIRUS INTO AN INFINITE  
DIMENSIONAL REPRODUCING KERNEL  
HILBERT SPACE...



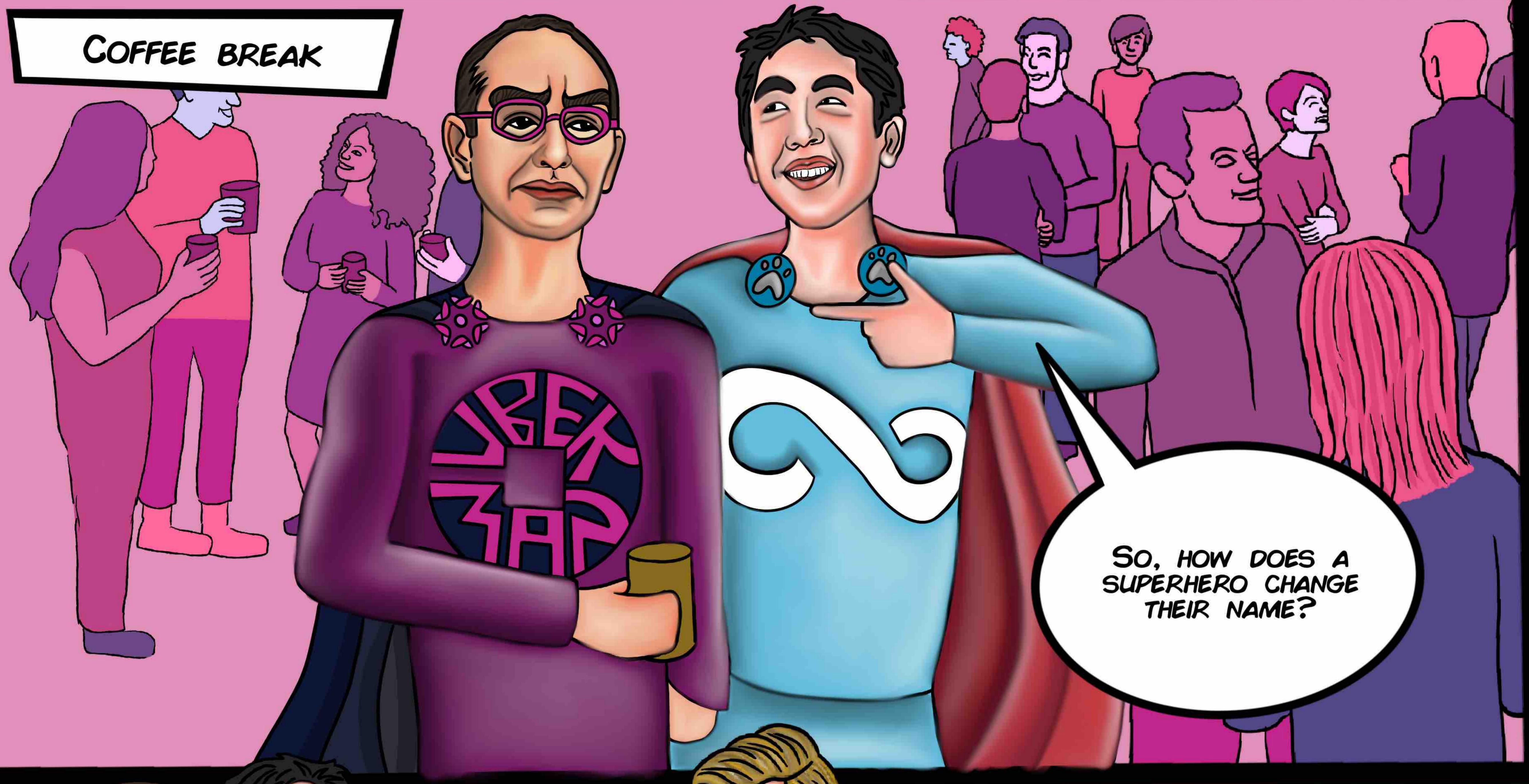


IT WILL BE A SIMPLE  
MATTER TO DIVIDE AND  
CONQUER THEM!





COFFEE BREAK



HEY! YOU GUYS  
GOING TO THE  
LIBER AI PARTY?



## Track 4- Tensor Methods





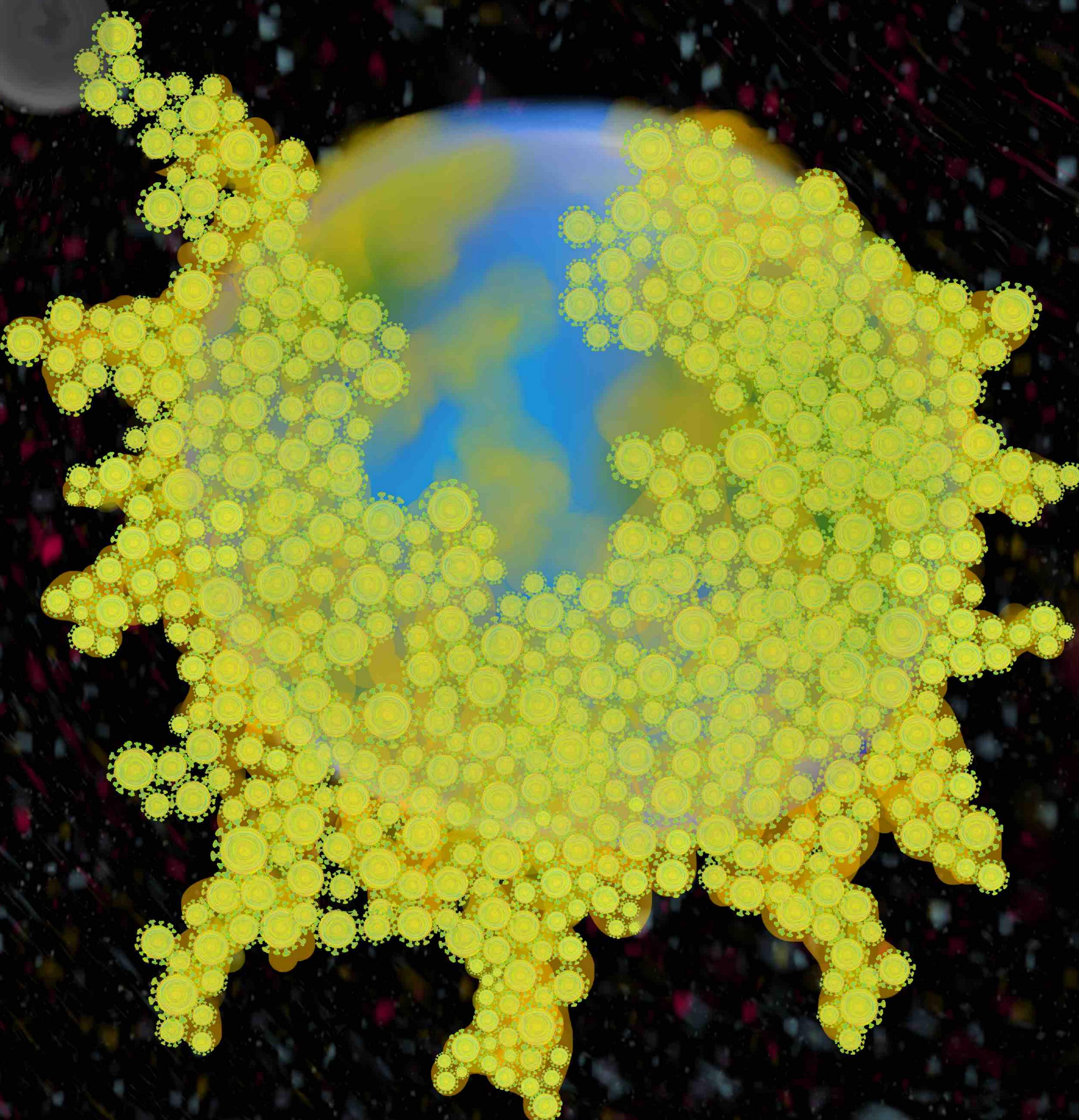
**STAND  
BACK!**

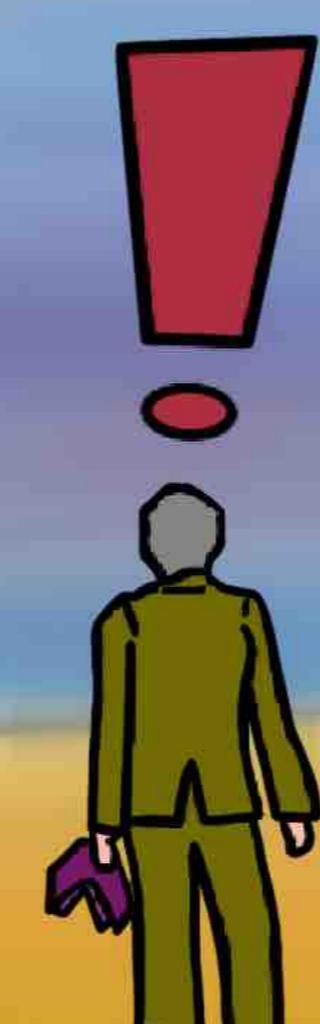
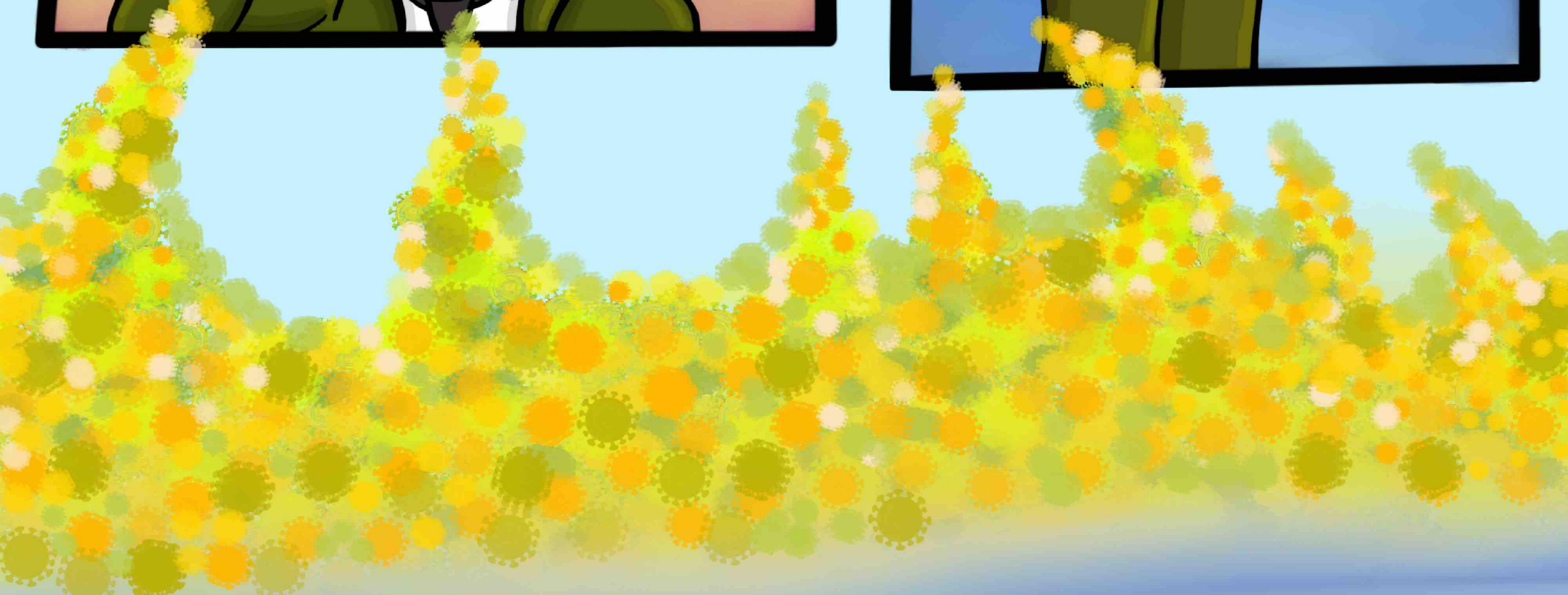


SMACK!



REMARKABLE! THE TENSOR FACTORIZATION  
WAS TOO EFFICIENT. EACH OF THE FACTORS  
RETAINED ENOUGH INFORMATION TO CONTINUE  
TO REPRODUCE AS A Viable VIRUS!!







WHEN WILL THESE  
CURVE FITTERS  
FINALLY LEARN?



WHEN I FIRST CONCEIVED  
OF ASSEMBLING THIS  
GREAT EDIFICE OF  
CAUSAL ABSTRACTION,

I KNEW THAT THIS  
DAY MIGHT COME.

THERE'S ONLY ONE  
OPTION LEFT -  
TO INTERVENE ON  
THE VERY FABRIC OF  
REALITY ITSELF,

GIVING HUMANITY A  
SECOND CHANCE IN A  
COUNTERFACTUAL  
UNIVERSE!



THIS MUST BE HOW  
ARCHIMEDES FELT

WHEN THE  
GREAT EPIPHANY  
STRUCK!

OR LEOPOLD SZILARD,

UPON  
RECOGNIZING  
THE GREAT  
POWER LOCKED  
IN THE ATOM!

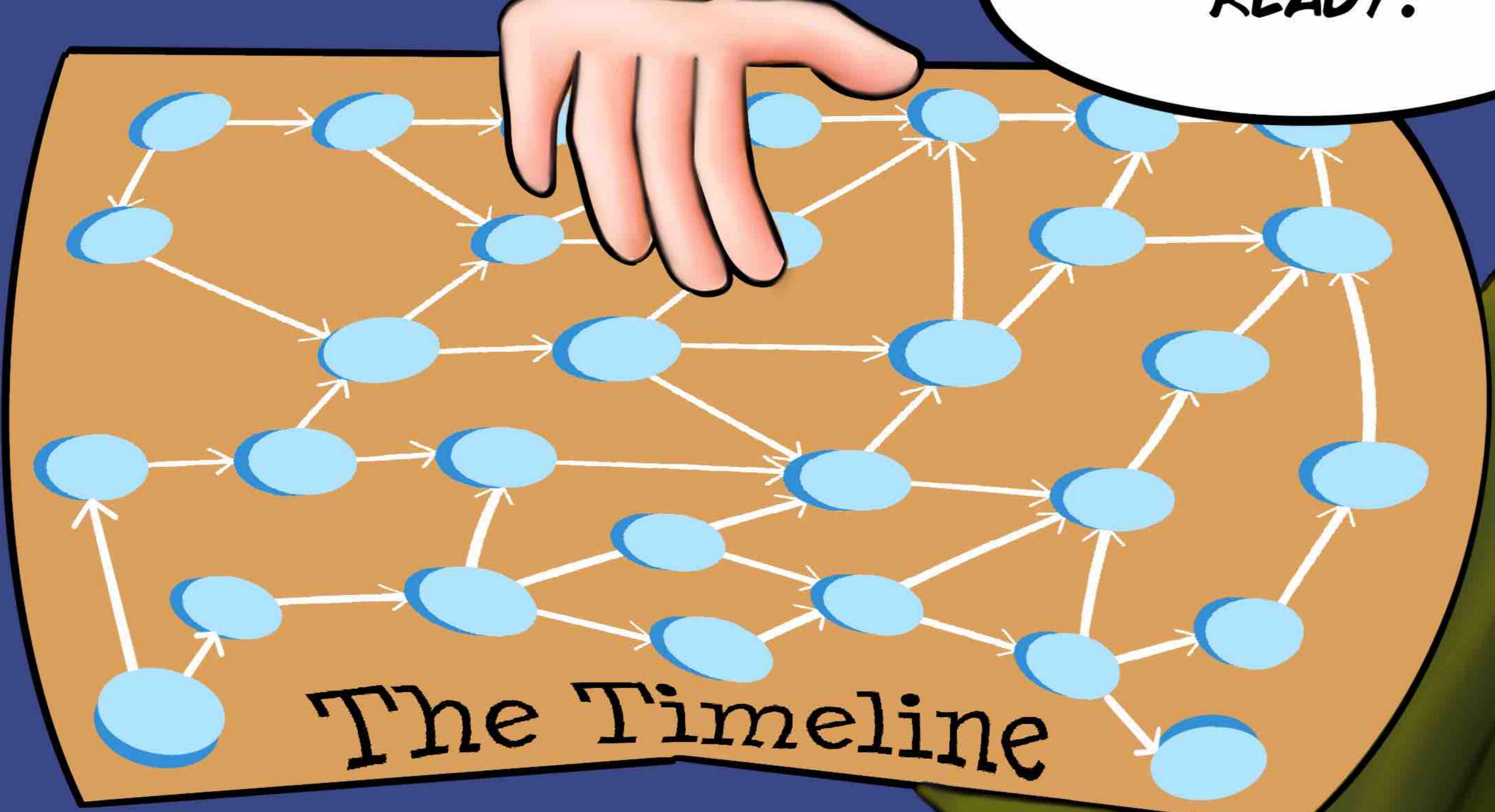
OR JOHN  
COLTRANE,

UPON MASTERING  
THE SHEETS OF SOUND!

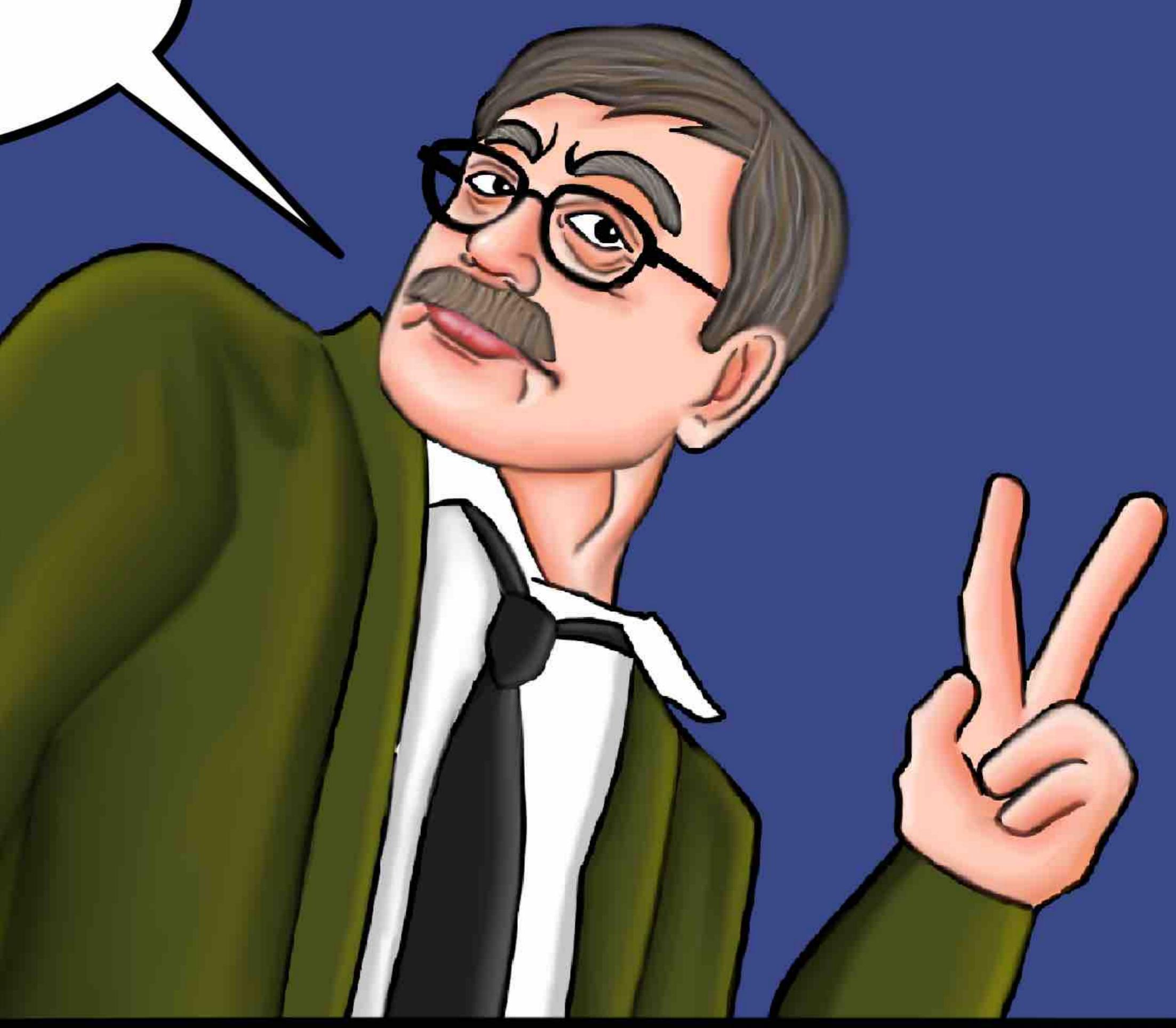
OR, THE CHEF AT  
WEXLER'S,

WHEN HE DISCOVERED  
THE PERFECT RATIO OF  
WHITEFISH, MAYO, SOUR  
CREAM, AND DILL...

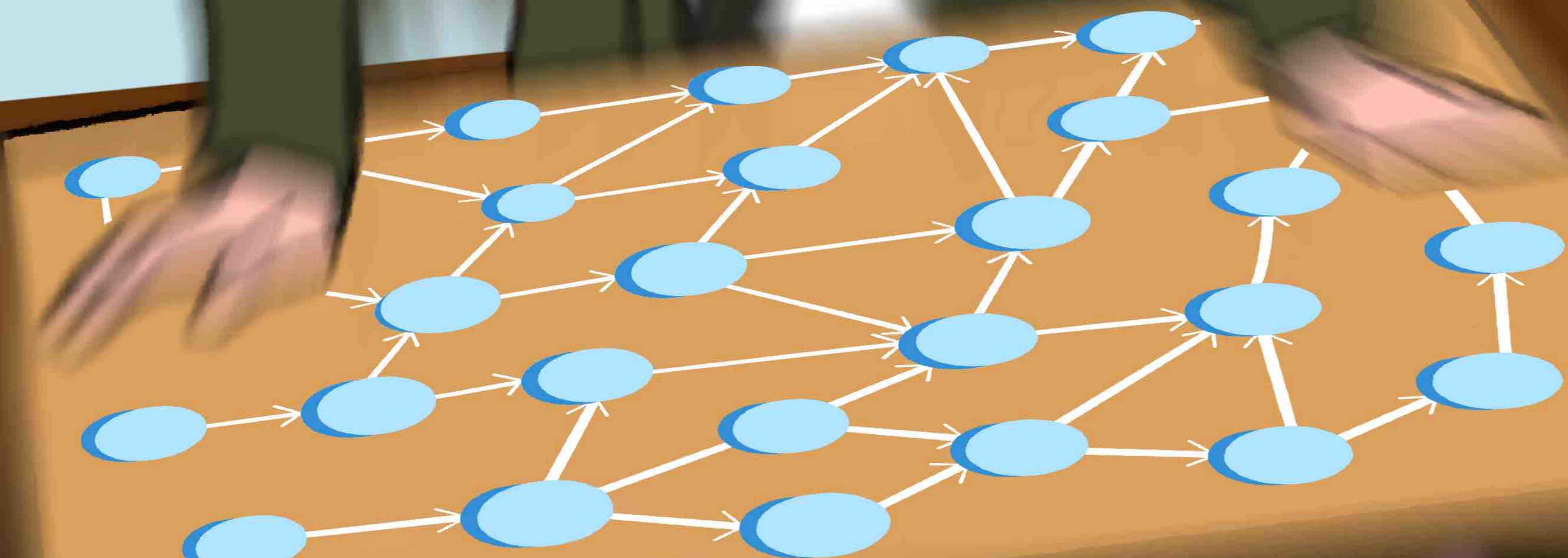
ONE HOUR LATER...

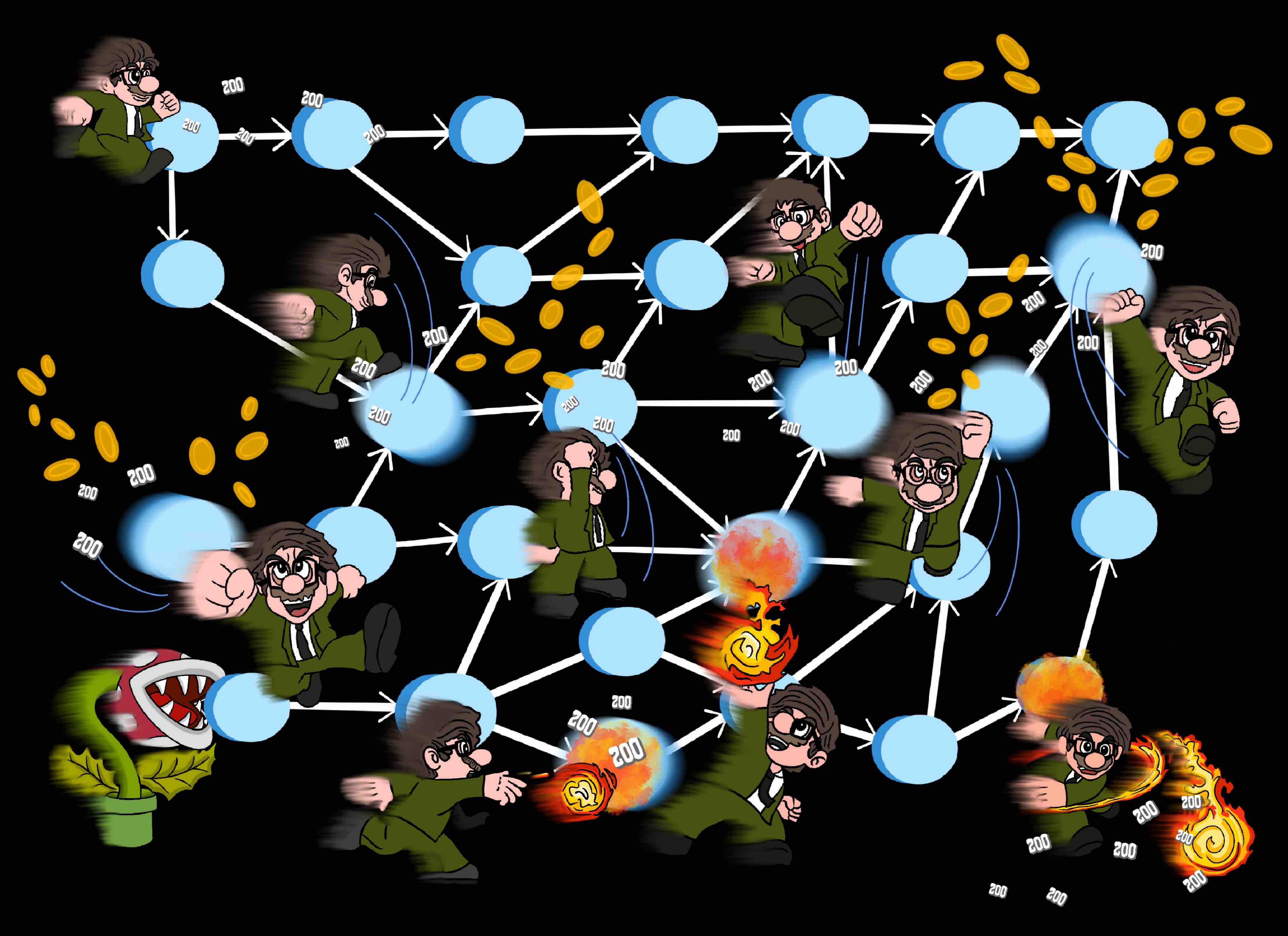


AH! IT IS  
READY!



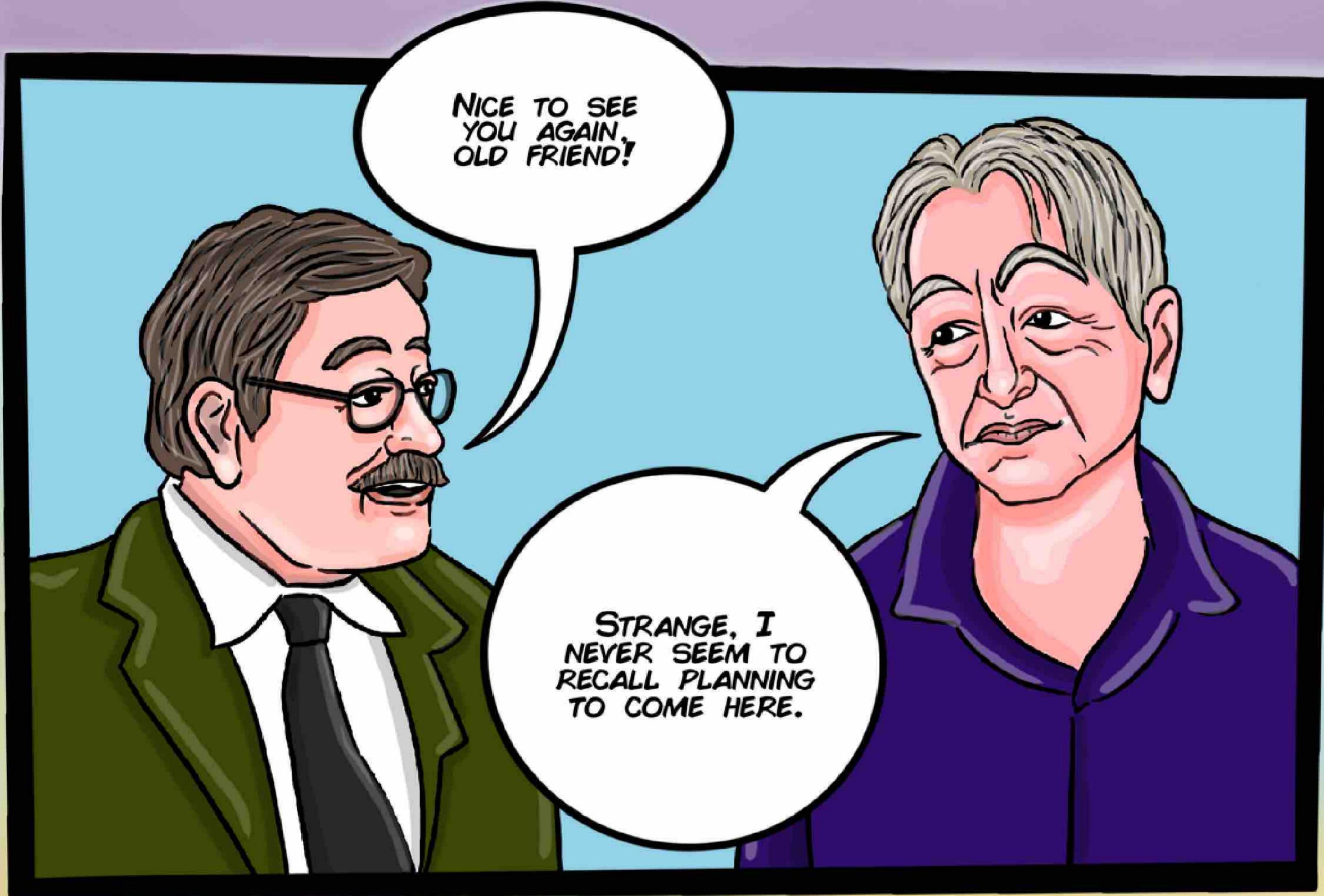
WELL, HERE  
GOES NOTHING...





SOME HOURS LATER... OR EARLIER,  
IN ANOTHER POSSIBLE WORLD







Stay up to date on all the adventures of the  
Deep Learning Superheroes at:  
<https://github.com/acmi-lab/superheroes-deep-learning>

Support our work on Patreon:  
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**FALAAH ARIF KHAN**

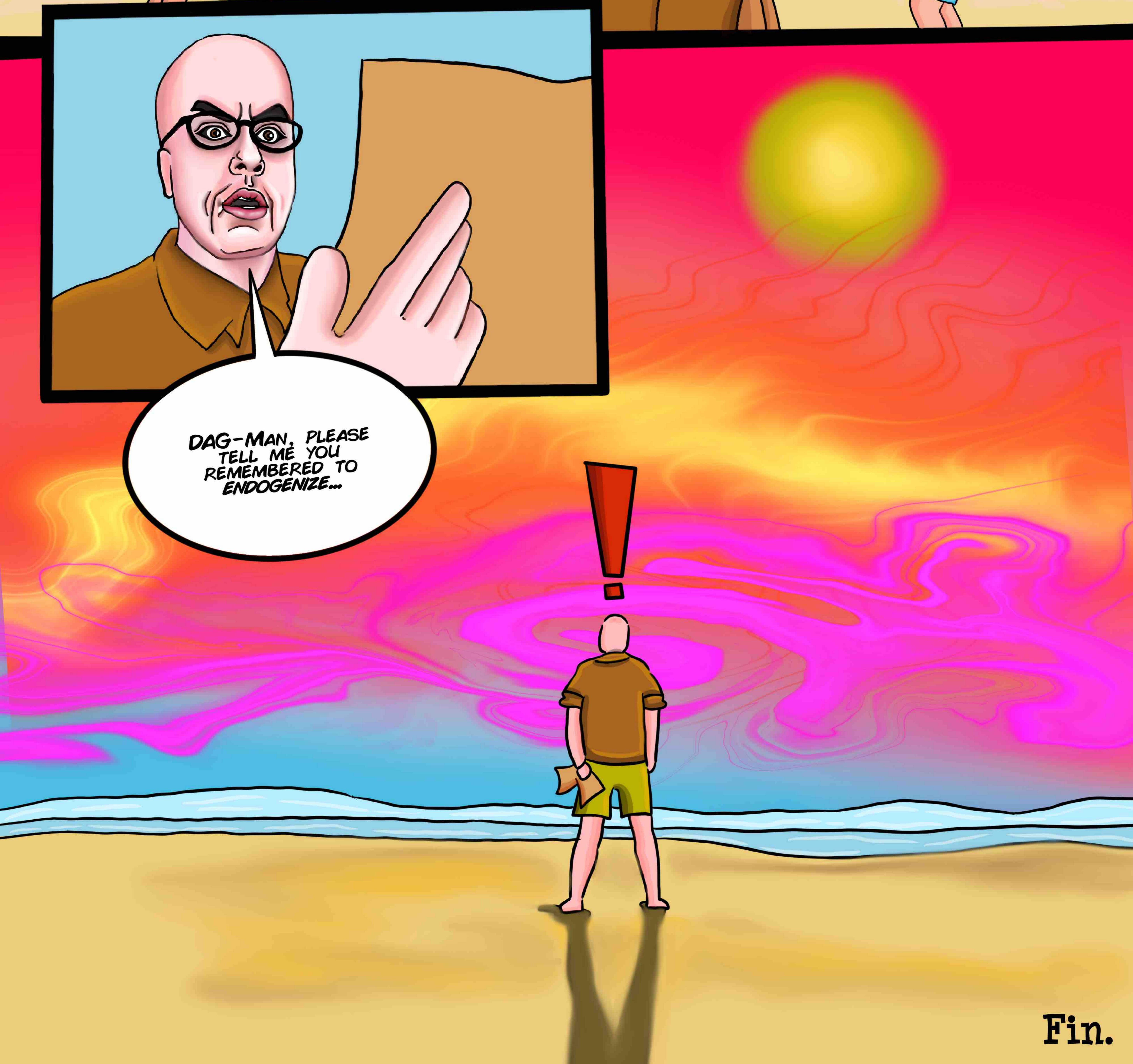
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Fin.