

Julien Cornebise, Ph.D.

2019.07.12 - UseR!

---

**“AI FOR GOOD”**

**IN R AND PYTHON ECOSYSTEMS**

**E L E M E N T <sup>AI</sup>**

 **UCL**



samsi  
NSF • Duke • NCSU • UNC • NISS



Google DeepMind



2000-2012

2012-2016

2017

2018 - ...

EAX=0012FE80 EBX=7E4196B8 ECX=00000000 EDX=003F1658 ESI=7E42772B  
EDI=7E418BF6 EBP=7E43C689 ESP=0012FE5C EIP=7E42772B o d I s z a p c  
CS=001B DS=0023 SS=0023 ES=0023 FS=003B GS=0000

\*ESP <ulong> = 0x401DFF, 4201983  
\*EBP <ulong> = 0x8B55FF8B, -1957298293

Address	Disassembly	Comment	Prot
0010:00406030	31 33 33 34 2D 31 32 33-38 36 2D 31 38 30 35 2D	StartIn!.data+0030	(0)
0010:00406040	33 35 37 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:00406050	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:00406060	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:00406070	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:00406080	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:00406090	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:004060A0	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:004060B0	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:004060C0	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:004060D0	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:004060E0	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:004060F0	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:00406100	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		
0010:00406110	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00		

USER32!CallMsgFilterW+021C

Address	Disassembly	Comment
001B:7E42772A	90	NOP
001B:7E42772B	8BFF	MOV EDI, EDI
001B:7E42772D	55	PUSH EBP
001B:7E42772E	8BEC	MOV EBP, ESP
001B:7E427730	8B5510	MOV EDX, [EBP+10]
001B:7E427733	8B4D14	MOV ECX, [EBP+14]
001B:7E427736	56	PUSH ESI
001B:7E427737	8BF2	MOV ESI, EDX
001B:7E427739	0BF1	OR ESI, ECX
001B:7E42773B	B80000FEFF	MOV EAX, FFFE0000
001B:7E427740	85F0	TEST EAX, ESI
001B:7E427742	0F855C9A0100	JNZ ↓7E4411A4
001B:7E427748	57	PUSH EDI
001B:7E427749	64A118000000	MOV EAX, FS:[00000018]
001B:7E42774F	83B84007000000	CMP DWORD PTR [EAX+00000740], 00
001B:7E427756	0F85589A0100	JNZ ↓7E4411B4
001B:7E42775C	8B7508	MOV ESI, [EBP+08]
001B:7E42775F	53	PUSH EBX
001B:7E427760	51	PUSH ECX

(PASSIVE)-KTEB(8953E7A0)-TID(041C)-user32!.text+0001672A

millisecons)

We have the following limits, as  $N \rightarrow \infty$ .

### Theorem

- 1 *Asymptotic behavior of KLD-based criterion:*

$$\left| d_{\text{KL}}(\mu_N^{\text{aux}} || \pi_N^{\text{aux}}) - \mathcal{E}(\{\tilde{\omega}_{N,i}\}_{i=1}^{\tilde{M}_N}) \right| \xrightarrow{\mathbb{P}} 0 .$$

*In addition,*

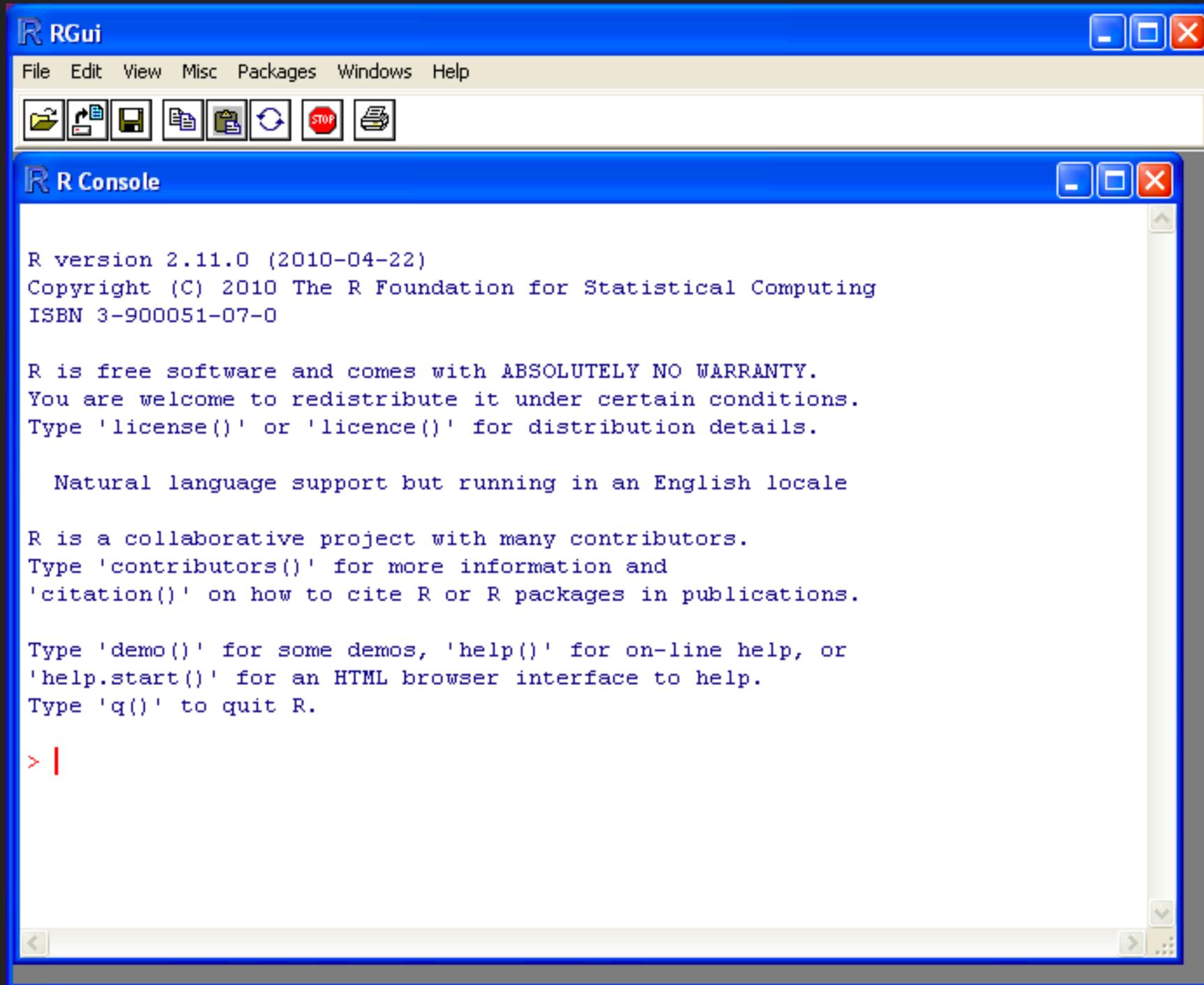
$$d_{\text{KL}}(\mu_N^{\text{aux}} || \pi_N^{\text{aux}}) \xrightarrow{\mathbb{P}} \eta_{\text{KL}}(\Psi) \triangleq \frac{\nu \otimes L}{\nu L(\tilde{\Xi})} \left\{ \log \left[ \Phi \frac{\nu(\Psi)}{\nu L(\tilde{\Xi})} \right] \right\} ,$$

- 2 *Asymptotic behavior of CSD-based criterion:*

$$\left| d_{\chi^2}(\mu_N^{\text{aux}} || \pi_N^{\text{aux}}) - \text{CV}^2(\{\tilde{\omega}_{N,i}\}_{i=1}^{\tilde{M}_N}) \right| \xrightarrow{\mathbb{P}} 0 .$$

*In addition,*

$$d_{\chi^2}(\mu_N^{\text{aux}} || \pi_N^{\text{aux}}) \xrightarrow{\mathbb{P}} \eta_{\chi^2}(\Psi) \triangleq \frac{\nu(\Psi)}{\nu L(\tilde{\Xi})} \times \frac{\nu \otimes L}{\nu L(\tilde{\Xi})}(\Phi) - 1 .$$



```
R version 2.11.0 (2010-04-22)
Copyright (C) 2010 The R Foundation for Statistical Computing
ISBN 3-900051-07-0

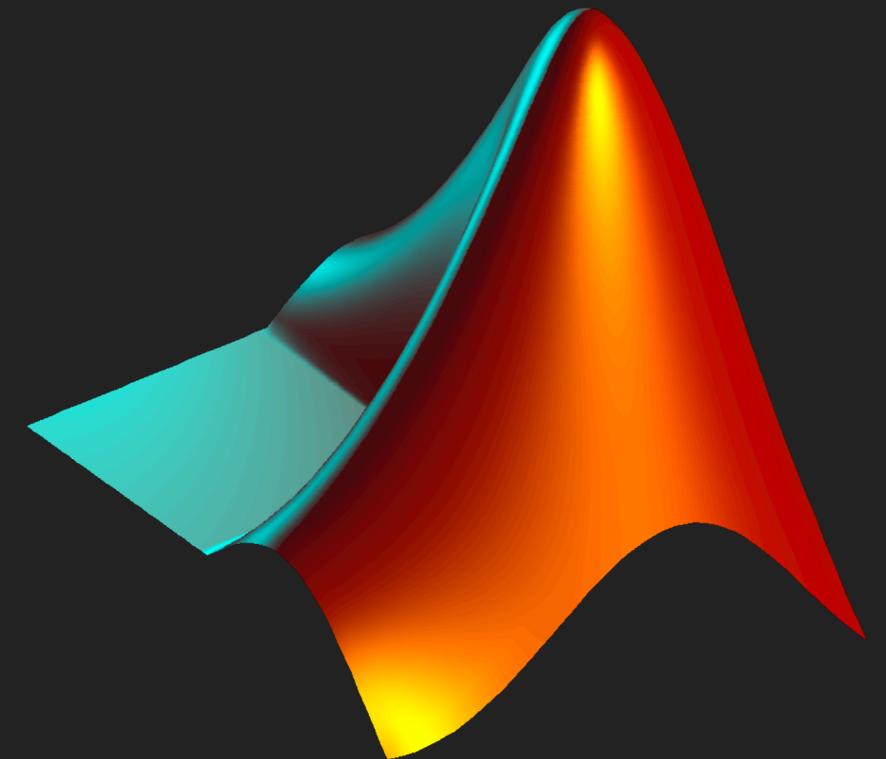
R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

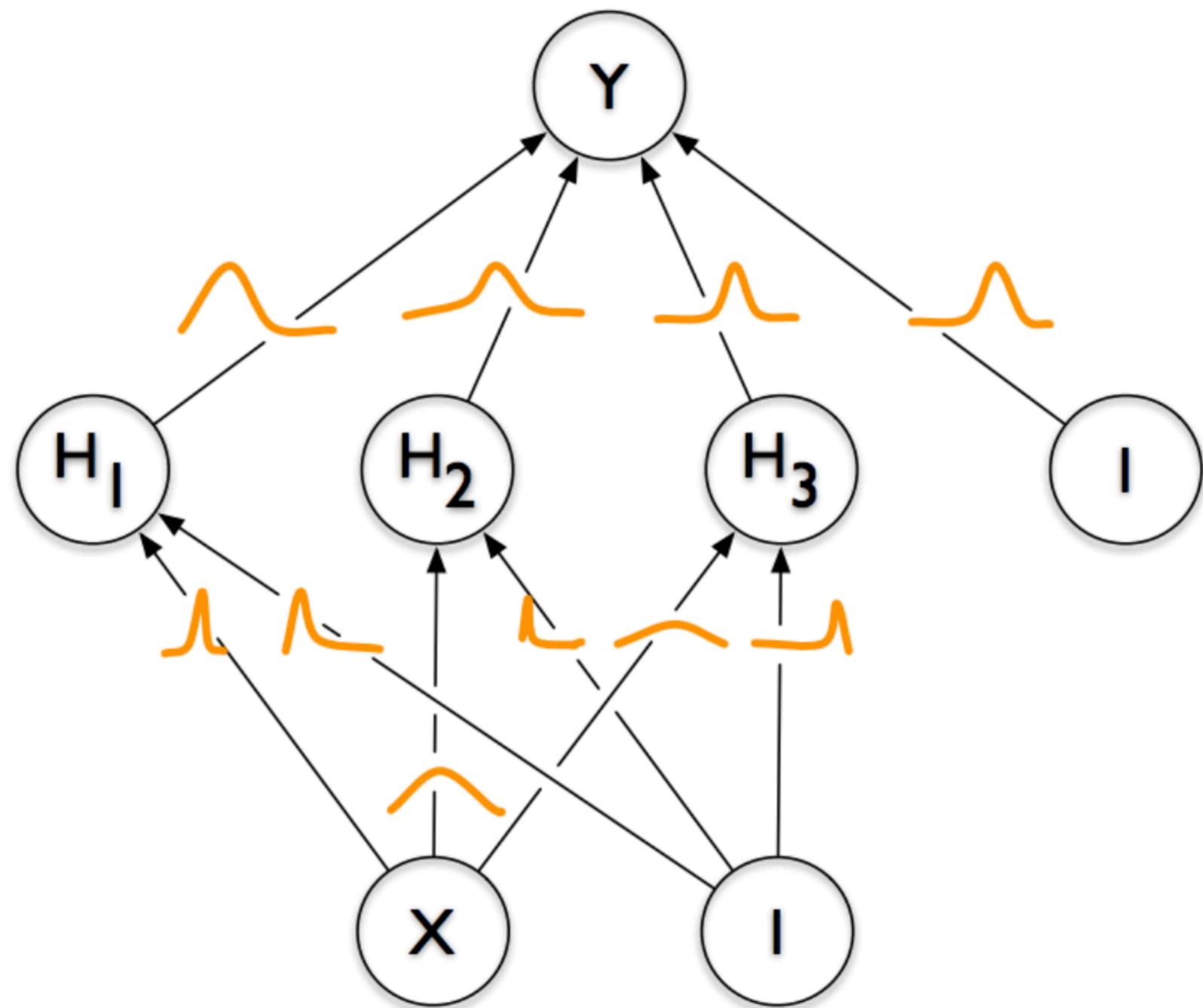
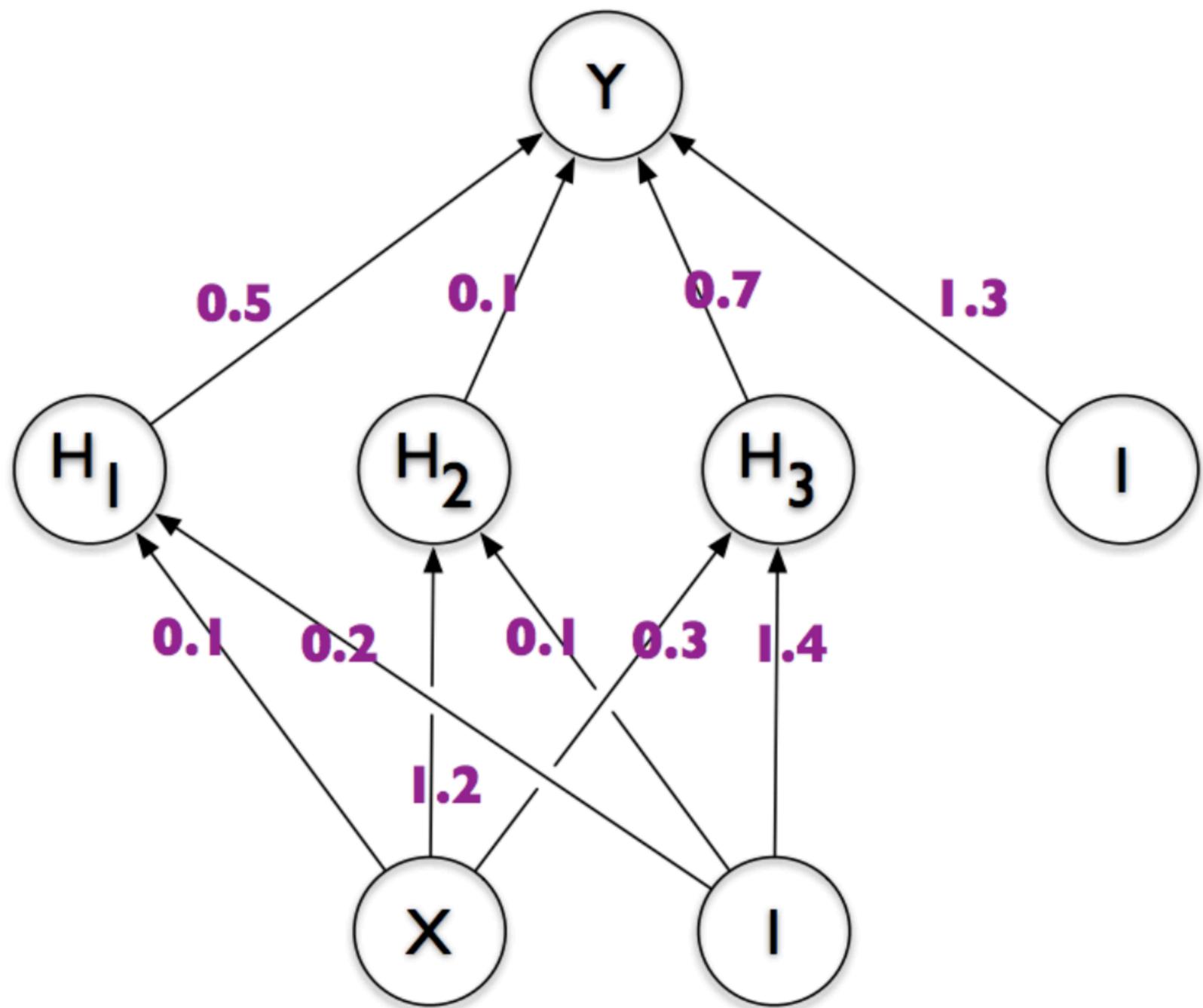
Natural language support but running in an English locale

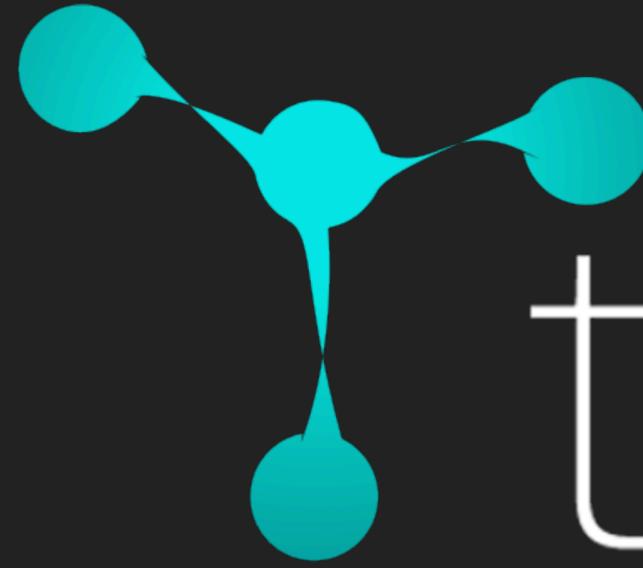
R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

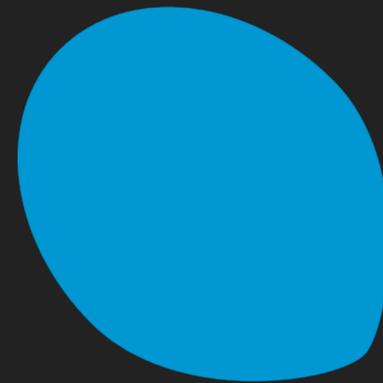
> |
```







torch





# Google De on AI-base

Google's AI research an radiotherapists by usin

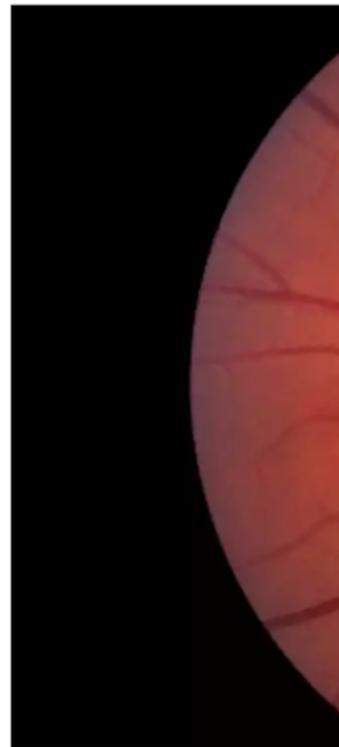


The DeepMind project wil Juice/REX/Shutterstock

The DeepMind project wil Juice/REX/Shutterstock

# Google Dec machine le

'Deep learning' research c network to identify early

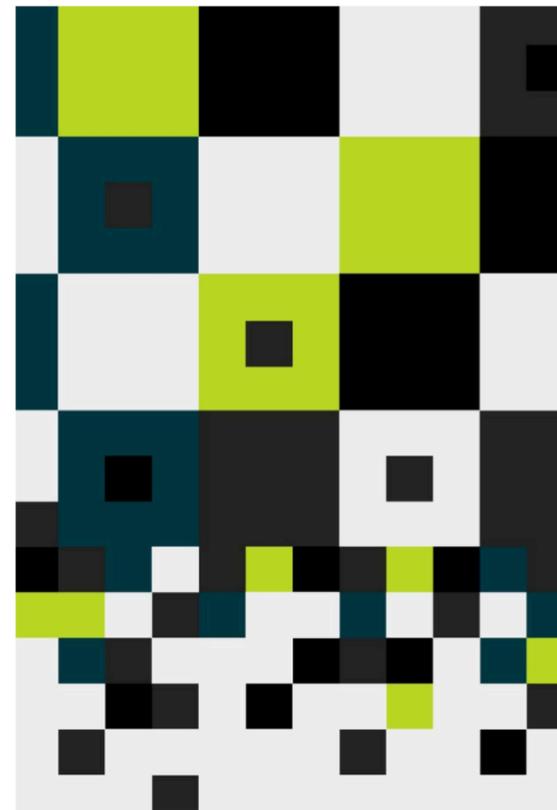


Retinal scans are produced r / Alamy Stock Photo/Alamy Sto

Retinal scans are produced r / Alamy Stock Photo/Alamy Sto

TOM SIMONITE BUSINESS 01.21.19 07:00 AM

# THE VA WANTS TO TO PREVENT KIDN



LA TIGRE

THE HUMAN BODY is f THE HUMAN BODY IS T

LA TIGRE

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Latest on Artificial intelligence

Marcus du Sautoy on creative AI

Daimler Trucks takes control of leading US self-driving tech group

McDonald's to buy AI company Dynamic Yield

Artificial intelligence + Add to myFT

## Artificial intelligence group DeepMind readies first commercial product

Device can diagnose a range of eye diseases in real time as accurately as the best specialists



Madhumita Murgia in London MARCH 31, 2019

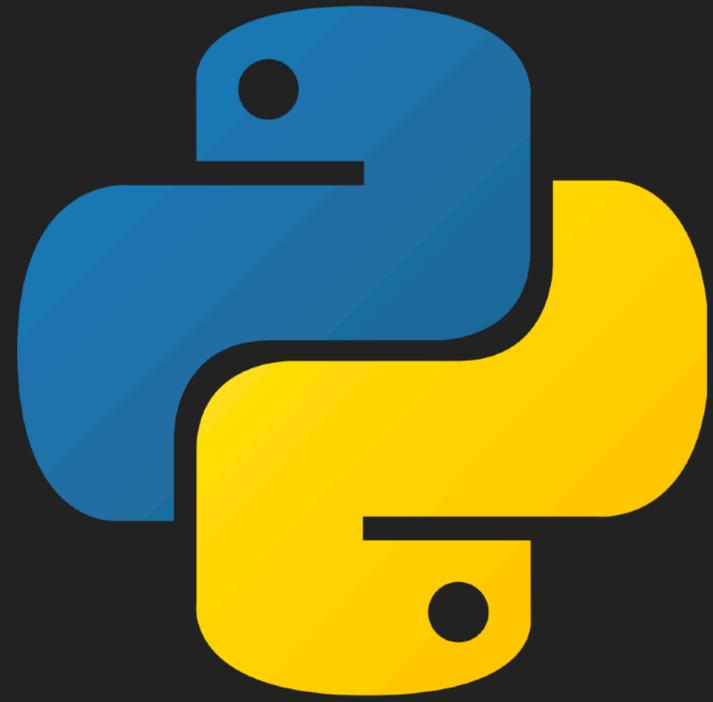
31

DeepMind, the British artificial intelligence group, has built a working prototype of a device that can diagnose complex eye diseases in real time, in a major step towards the Alphabet-owned company's first medical device.

In a live demonstration this month of its AI system, where a patient agreed to be examined publicly, DeepMind performed a retinal scan and real-time diagnosis of her eye. The scan was analysed by a set of algorithms in Google Cloud, which provided an urgency score and a detailed diagnosis, all in roughly 30 seconds.

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TensorFlow

colab



MySQL®



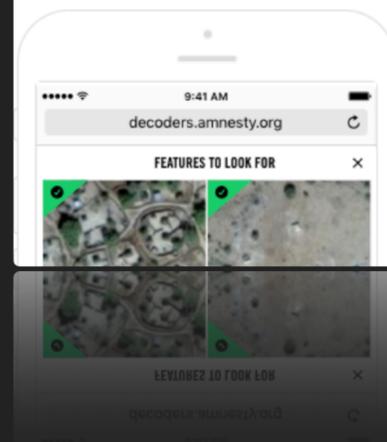
PROJECT COMPLETE

# DECODE DARFUR

28,600 volunteers from 147 countries took part in analysing 326,000 square kilometers of satellite imagery to identify Darfur's most remote villages

ABOUT

NEXT PROJECT



## ABOUT THE PROJECT

Using their computers and phones, 28,600 Decoders contributed more than 9,000 hours to map remote and vulnerable villages in Darfur

In 2016, Amnesty International [published credible evidence](#) that countless villages in Darfur have been attacked by the Sudanese government and its allied militias. People have been shot while fleeing, raped, and even killed. People have been shot while fleeing, raped, and even killed. Villages in Darfur have been attacked by the Sudanese government and in 2016, Amnesty International [published credible evidence](#) that countless

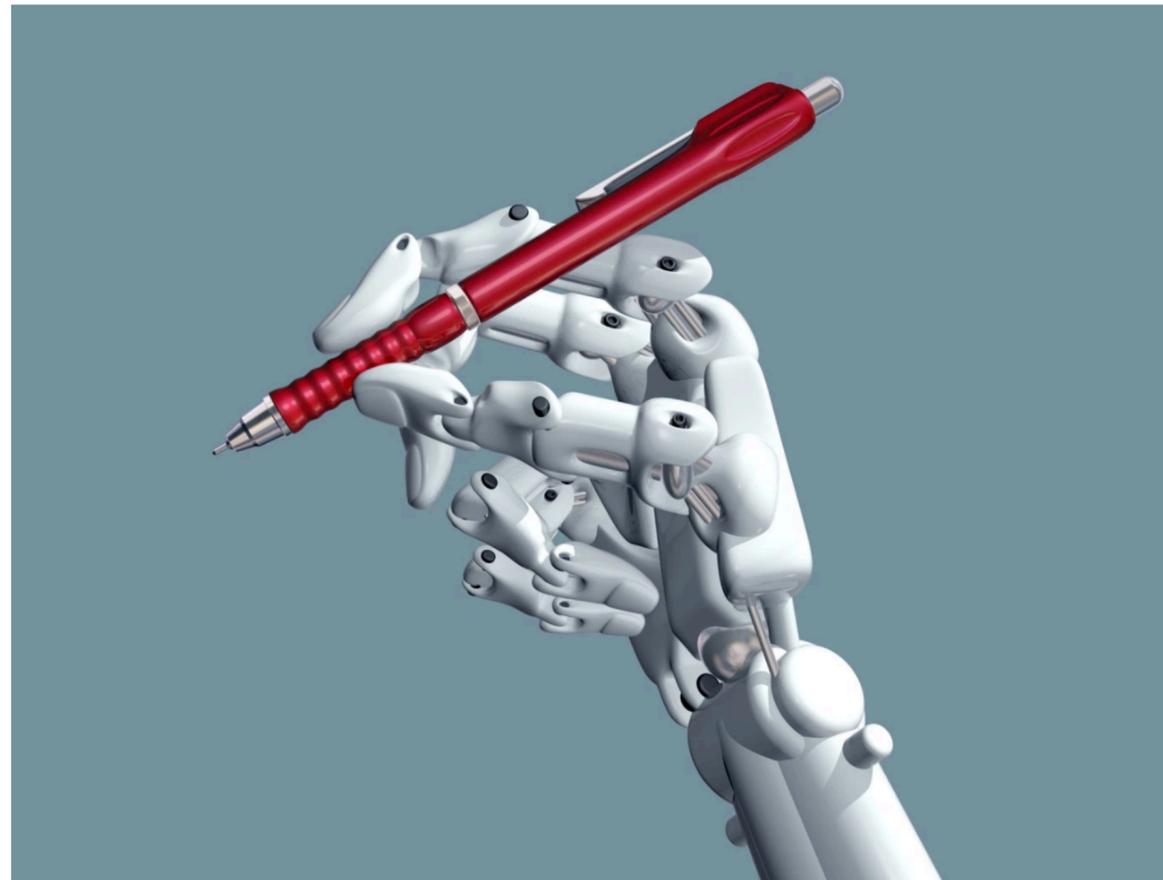
countless villages in Darfur contributed more than 9,000 hours to map remote and

# Element AI opens London outpost with focus on 'AI for good'



Ingrid Lunden @ingridlunden / 1 year ago

Comment



[Element AI](#) — which last year [raised \\$102 million](#) to build an incubator-meets-consultancy to work with multiple businesses as they launch new services and systems based on artificial intelligence — is entering the next phase of its growth this week.

The Canadian startup — co-founded by Jean-François Gagné, Nicolas Chapados, and Yoshua Bengio — is opening an outpost in London, its first international expansion. One main focus will be to work with charities, non-governmental organizations and others on “AI for good,” alongside **Element AI's** existing work in finance, cybersecurity, manufacturing, logistics and robotics.

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# TROLL PATROL FINDINGS

Using Crowdsourcing, Data Science & Machine Learning to  
Measure Violence and Abuse against Women on Twitter

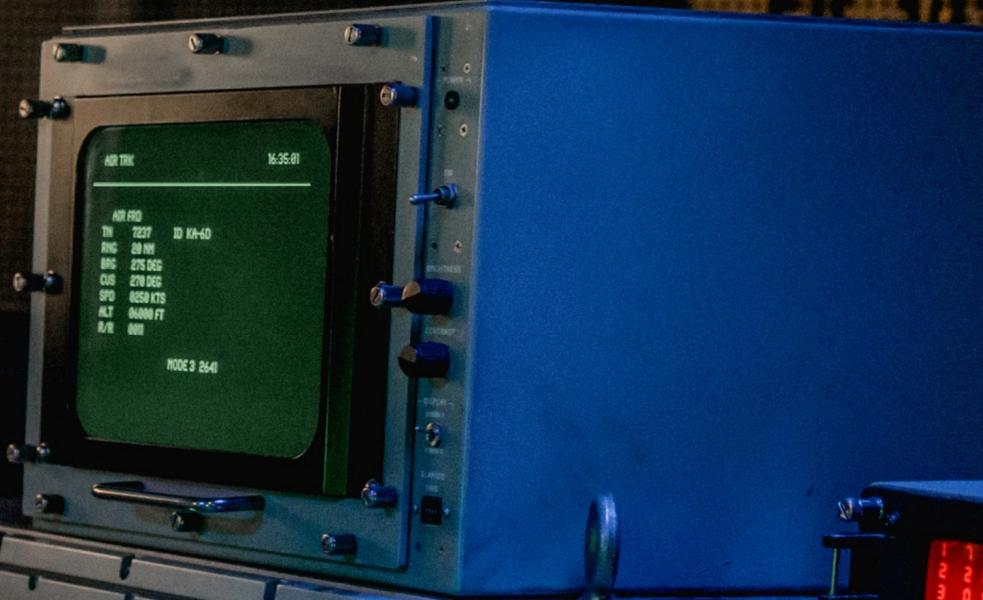
Welcome to the findings of our Troll Patrol project: a joint effort by human rights researchers, technical experts and thousands of online volunteers to build the world's largest crowd-sourced dataset of online abuse against women.

Our findings reveal the sheer scale and nature of online abuse faced by women and provides a resource to researchers and engineers interested in exploring the potential of machine learning in content moderation.

These findings are the result of a collaboration between Amnesty International and **Element AI**, a global artificial intelligence software product company. Together, we surveyed millions of tweets received by

product company. Together, we surveyed millions of tweets received by Amnesty International and **Element AI**, a global artificial intelligence software product company. Together, we surveyed millions of tweets received by Amnesty International and **Element AI**, a global artificial intelligence software product company. Together, we surveyed millions of tweets received by

BROW	2	28	27
DEXTER	2	16	18
HAMMER	2	19	
SPART	2	23	25
SMOKER	2	12	
MUSTANG	2	10	12
EMERALD	2	26	5
HUTCH	2		24 5 32
WOLFIN	2	23	37
BOSSA	2	29	2 19 2

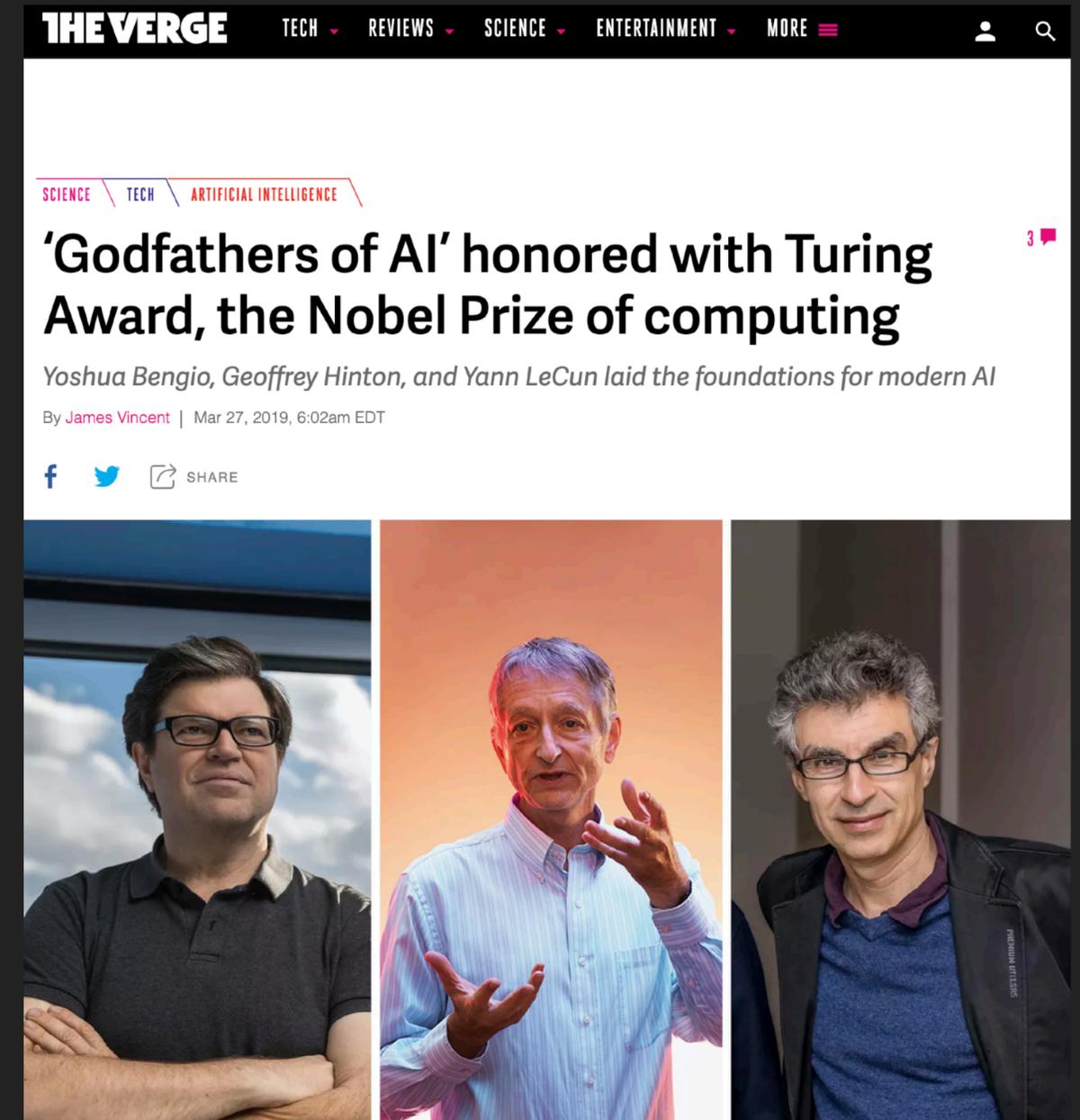




# ELEMENT AI: A CRAZY RIDE

# ELEMENT AI

- ▶ **B2B software company**
  - ▶ **Co-founded in 2016 by Yoshua Bengio & JF Gagné**
  - ▶ **ML Horizontal, multiple verticals**
  - ▶ **\$100M Series A**
  - ▶ **First products coming out now**
  - ▶ **~500 Employees in Montreal, Toronto, London, Singapore, Seoul**
- ▶ **And a whole "AI for Good" department, 13, in London, working with the whole company**



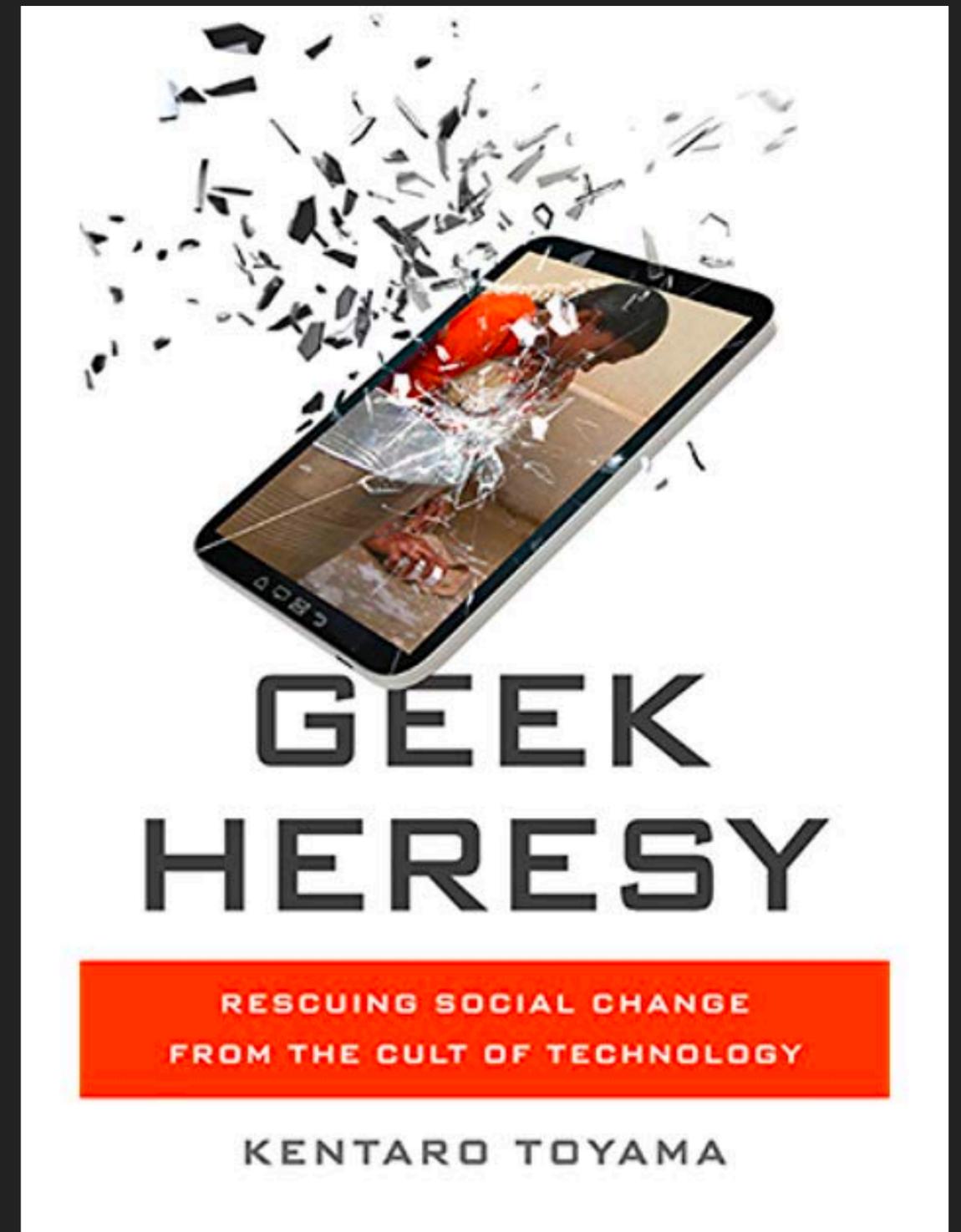
**DEFINE "GOOD"?**

**“TECHNOLOGY – NO MATTER HOW WELL  
DESIGNED – IS **ONLY A MAGNIFIER** OF HUMAN  
INTENT AND CAPACITY.”**

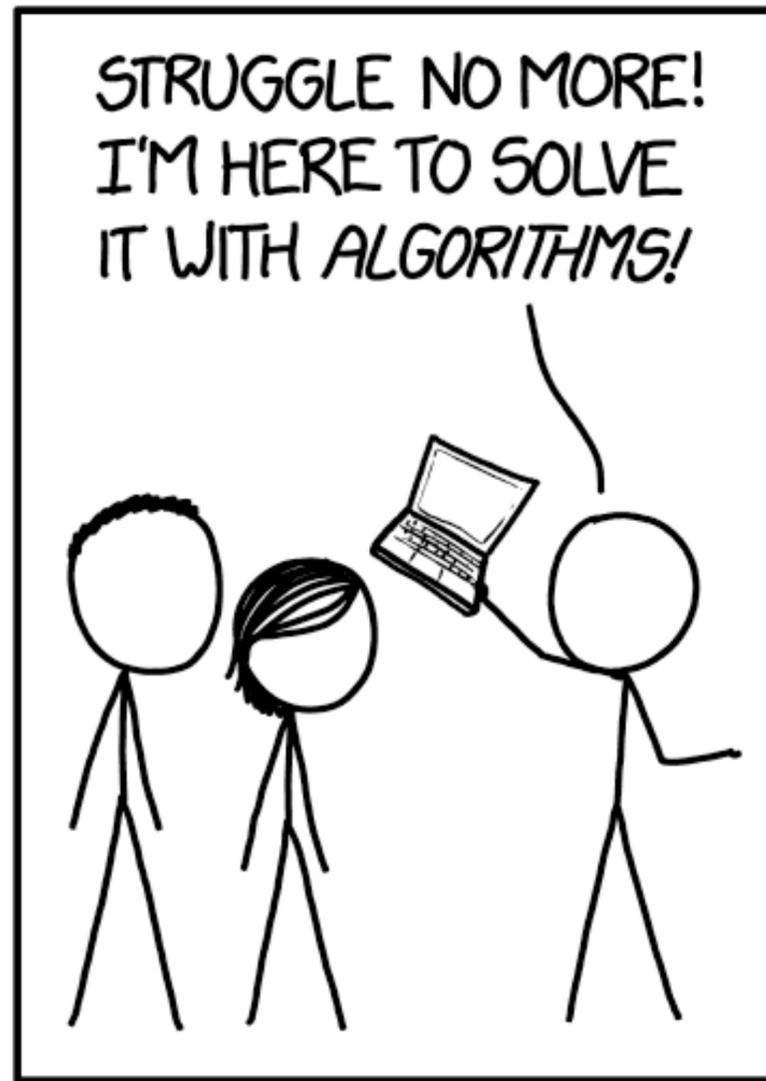
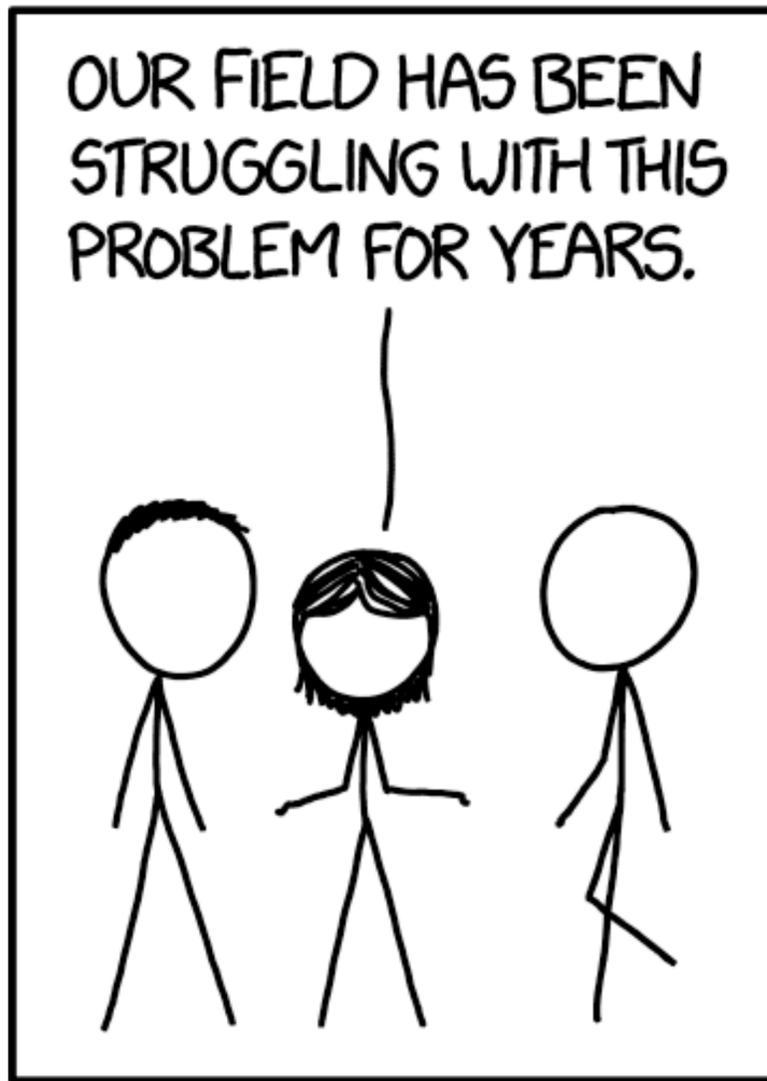
**Kentaro Toyama (2015)**

## GOOD NEWS: A PATH (TOO) WELL TRODDEN

- ▶ **30 years of ICT4D**
- ▶ **Many fiascos**
  - ▶ **“One Laptop Per Child”**
  - ▶ **Telecentres**
  - ▶ **PlayPump**
- ▶ **Many pitfalls to learn from!**



**PARTNER** HAND IN HAND WITH  
DOMAIN EXPERTS: EMPOWER THEM

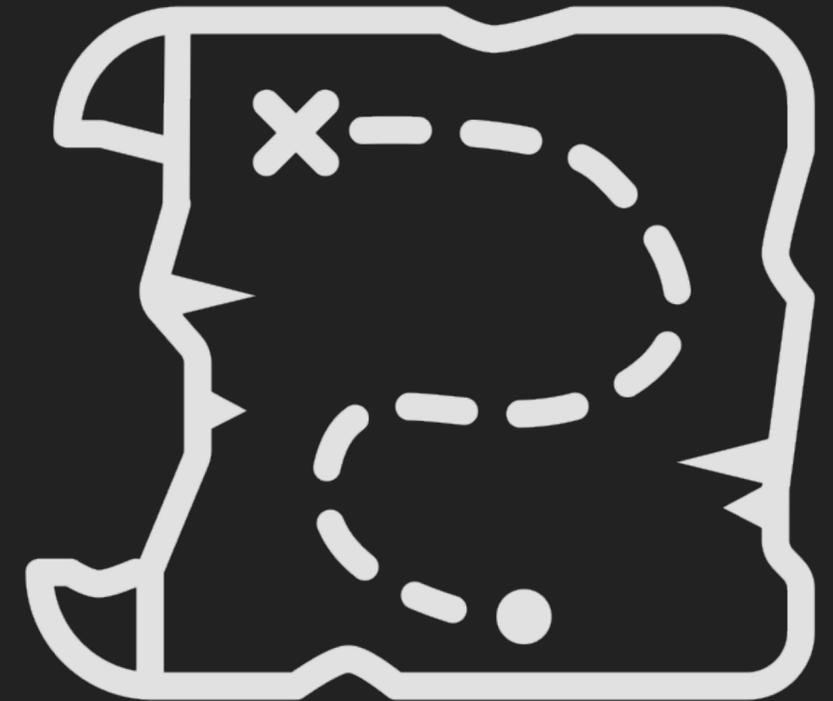


*"- We TOLD you it was hard.*

*- Yeah, but now that I'VE tried, we KNOW it's hard."*

# NAVIGATING PITFALLS – THE ONE SLIDE TO REMEMBER

- ▶ Path to **concrete impact**? Batting average vs “measure”
- ▶ Get **rid of hype**
- ▶ No **“Tech Savior”**, no **“White Savior”**
- ▶ Identify **right depth of tech**
- ▶ Hard question to researchers:
  - ▶ Are you here to **solve a problem**
  - ▶ or to **illustrate your method**?
- ▶ Plan for **Sustainability** - long development
  - ▶ **Hackathon syndrome**: GitHub as a cemetery
  - ▶ Beyond research: are the **engineers** and **designers**?



**AMNESTY  
INTERNATIONAL**



**UCL**



**Micah  
Farfour**



**@deworall92**



**@milena\_iul**

**2017**

**DECODE DARFUR:**

**FINDING BURNED VILLAGES**



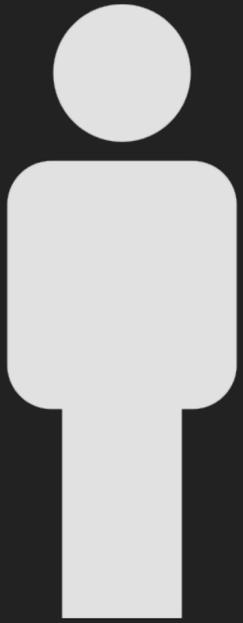


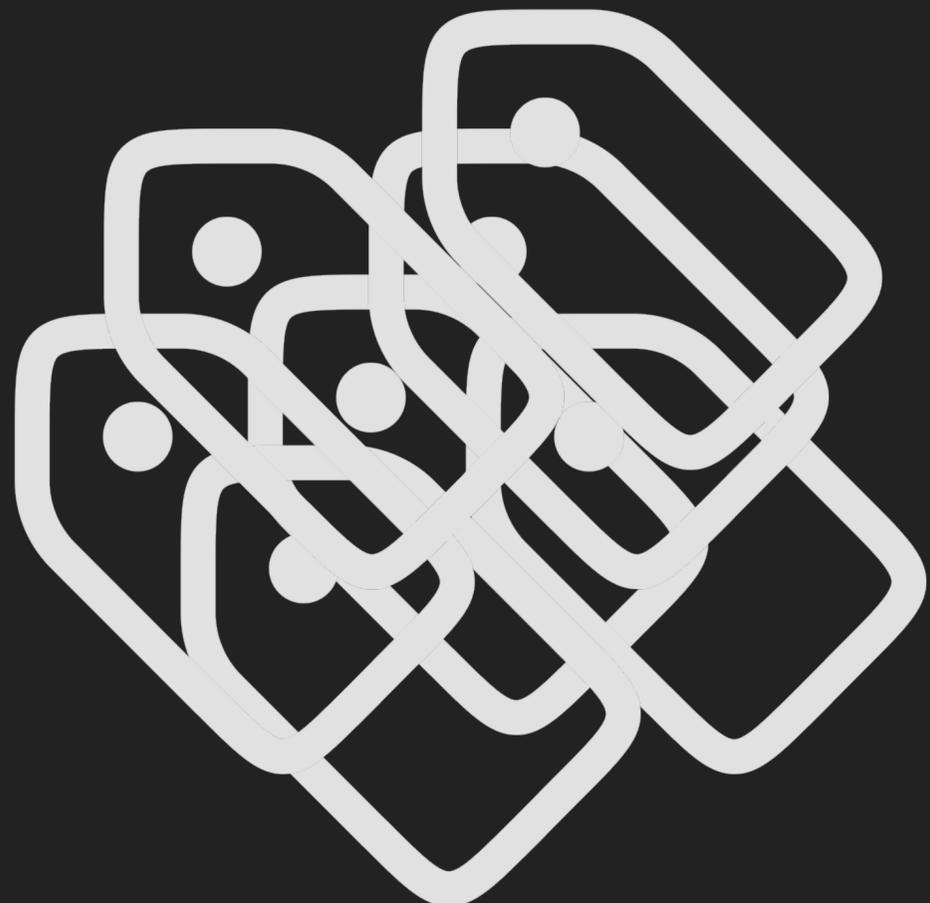
Stuart Price/Albany Associates

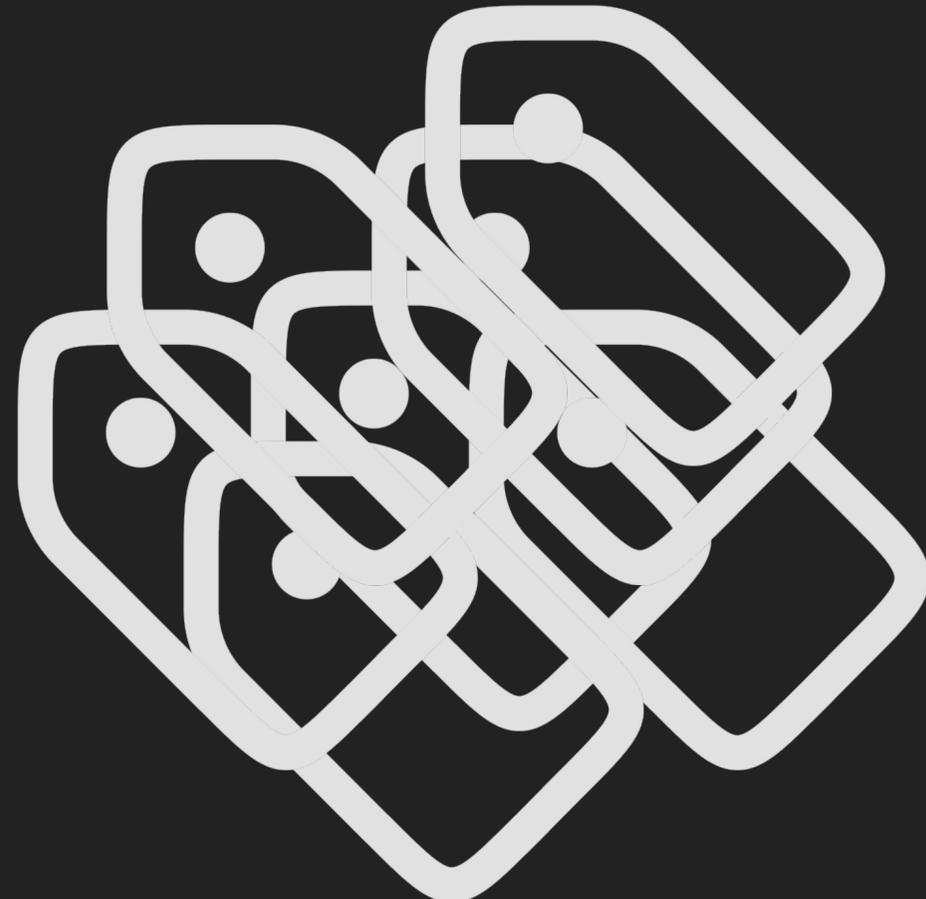
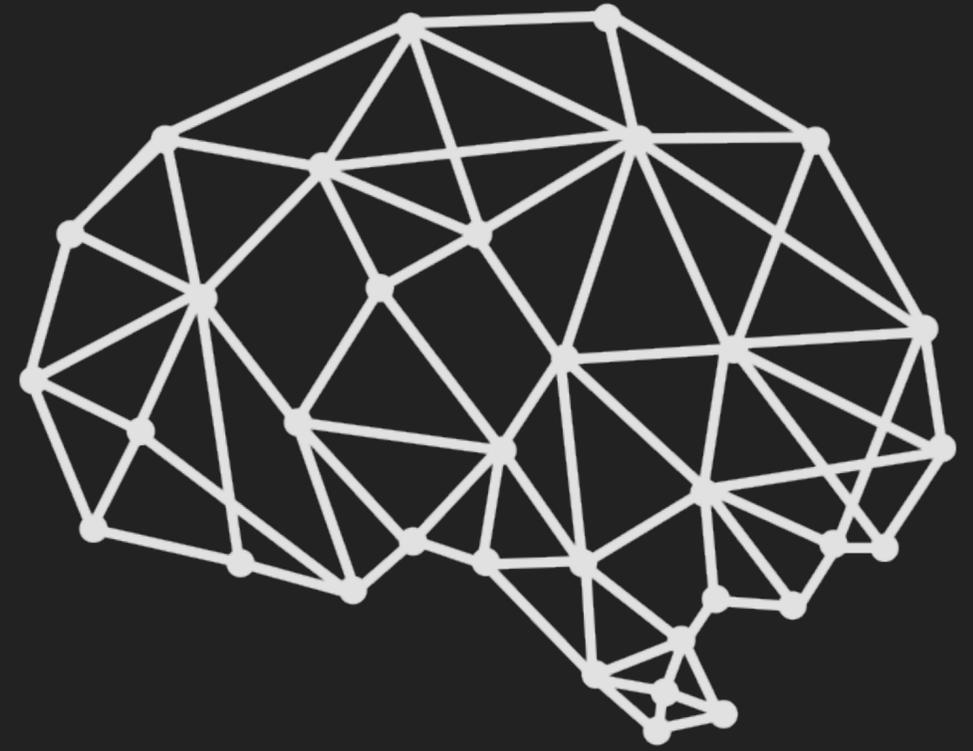


Brian Steidle









# DEEP LEARNING TO DECODE DARFUR



✓ Metal roofs or other unnatural colour (can be isolated or in groups)



✓ Linear or circular features that enclose other objects  
✓ Shadows (darkness) from the linear or circular features  
✓ Many similar features clustered together



X Round, sporadic features, not enclosed, sometimes green



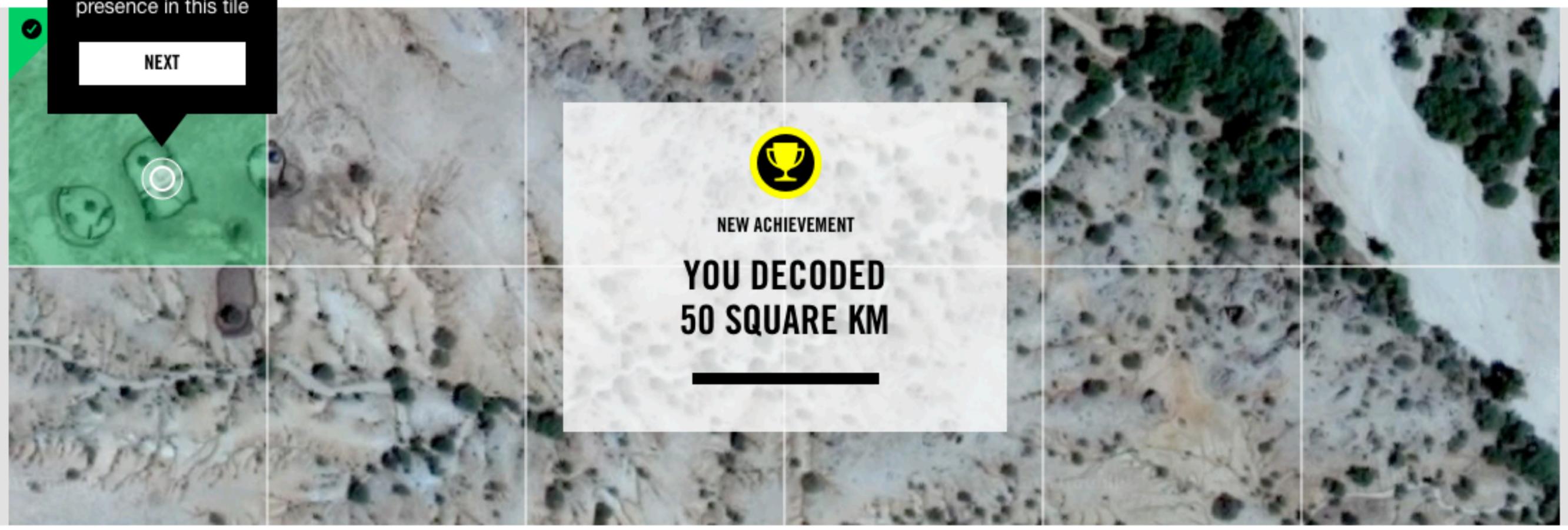
SELECT TITLES CONTAINING HUMAN PRESENCE

FLAG

HELP

Well done! You identified the human presence in this tile

NEXT



CONTINUE →

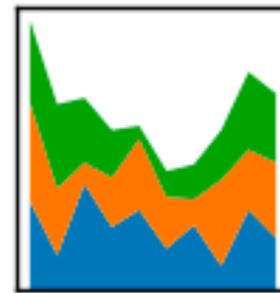
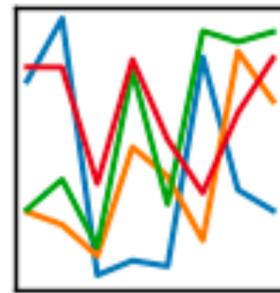
<p><b>25</b> SQUARE KM THIS SESSION</p>	<p><b>149</b> SQUARE KM ALL SESSIONS</p>	<p><b>1659</b> SQUARE KM ALL VOLUNTEERS</p>
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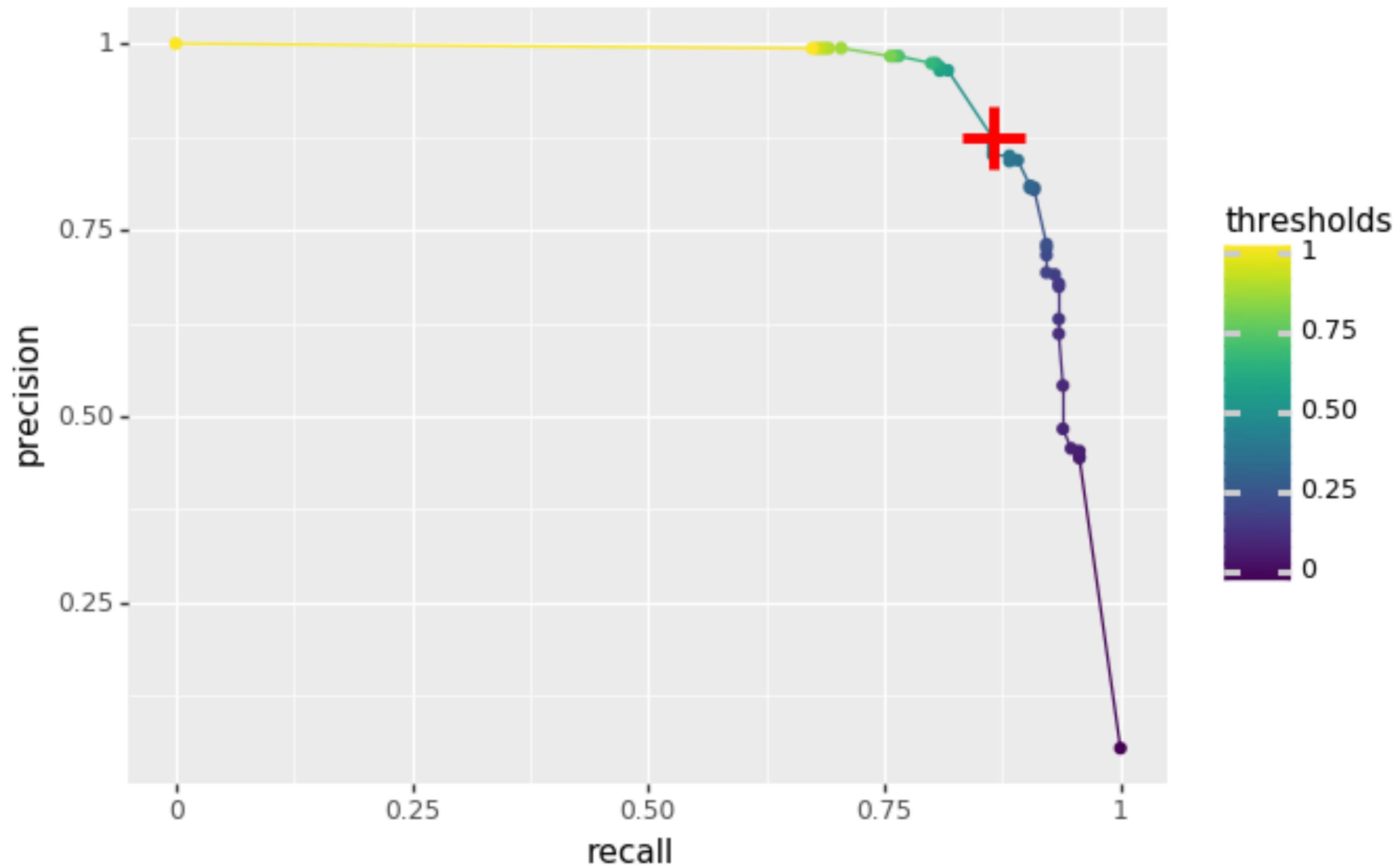




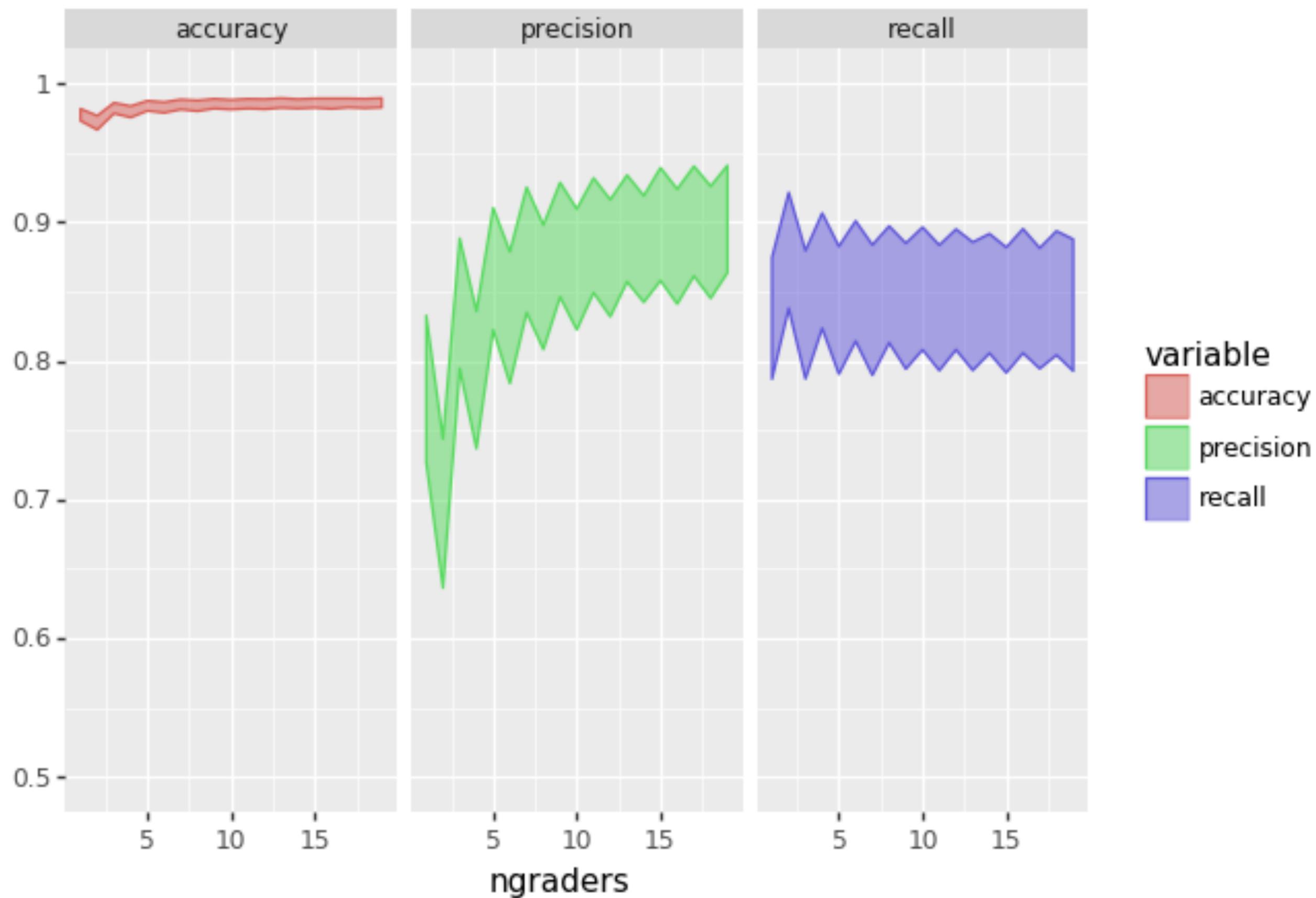
**pandas**

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$





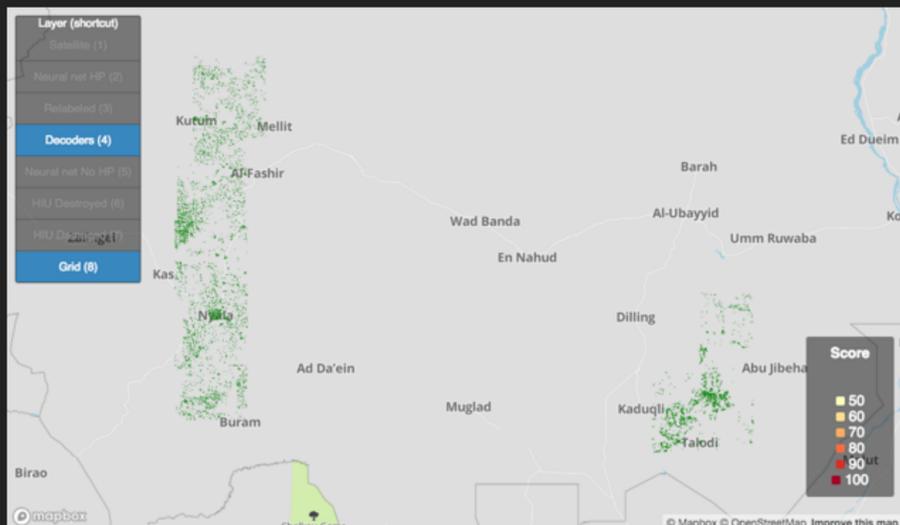
# Bootstrapped with .5 threshold



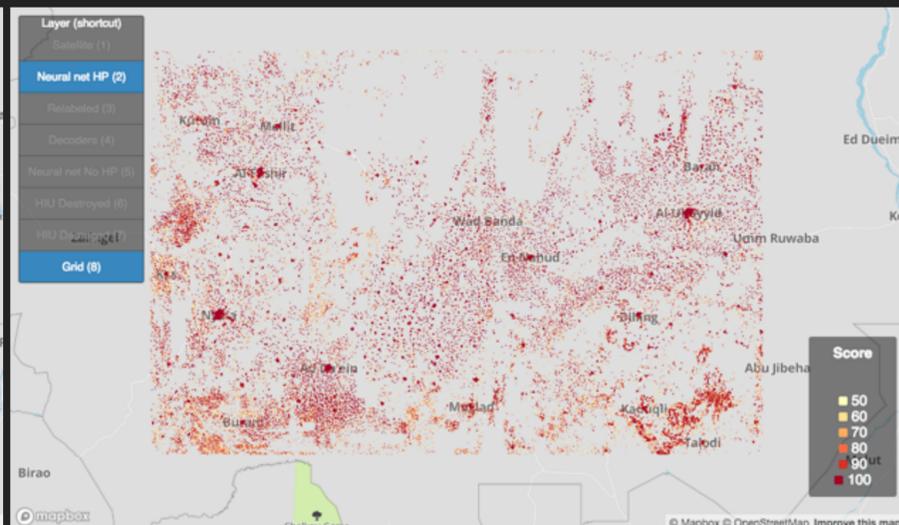
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## HIGH-RESOLUTION VIDEO REMOVED FROM PDF

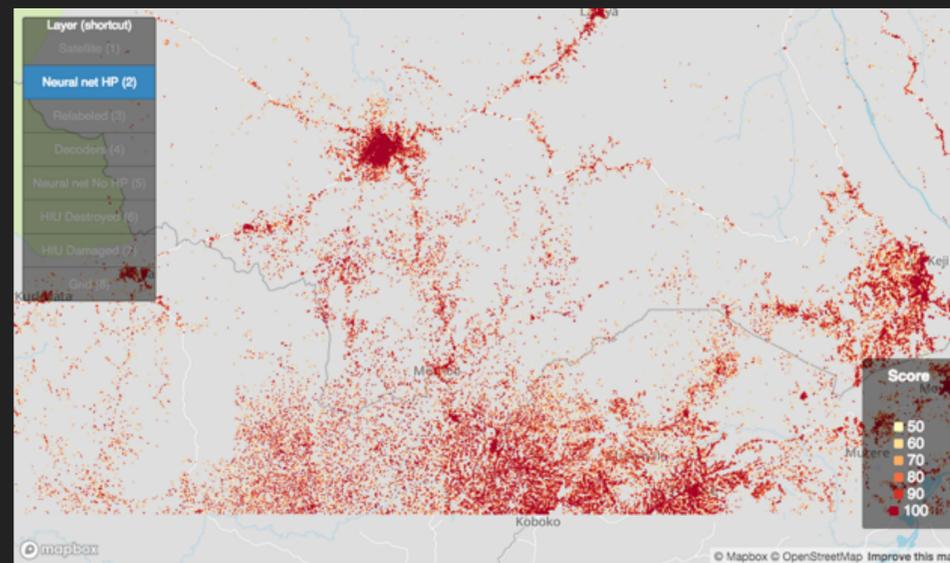
- ▶ Apologies, we decided not to share in high-resolution PDF the video of the results, because the location of the villages found can be sensitive.
- ▶ Instead, we have made available low-resolution screenshots in the next slide.



*Green: volunteers*

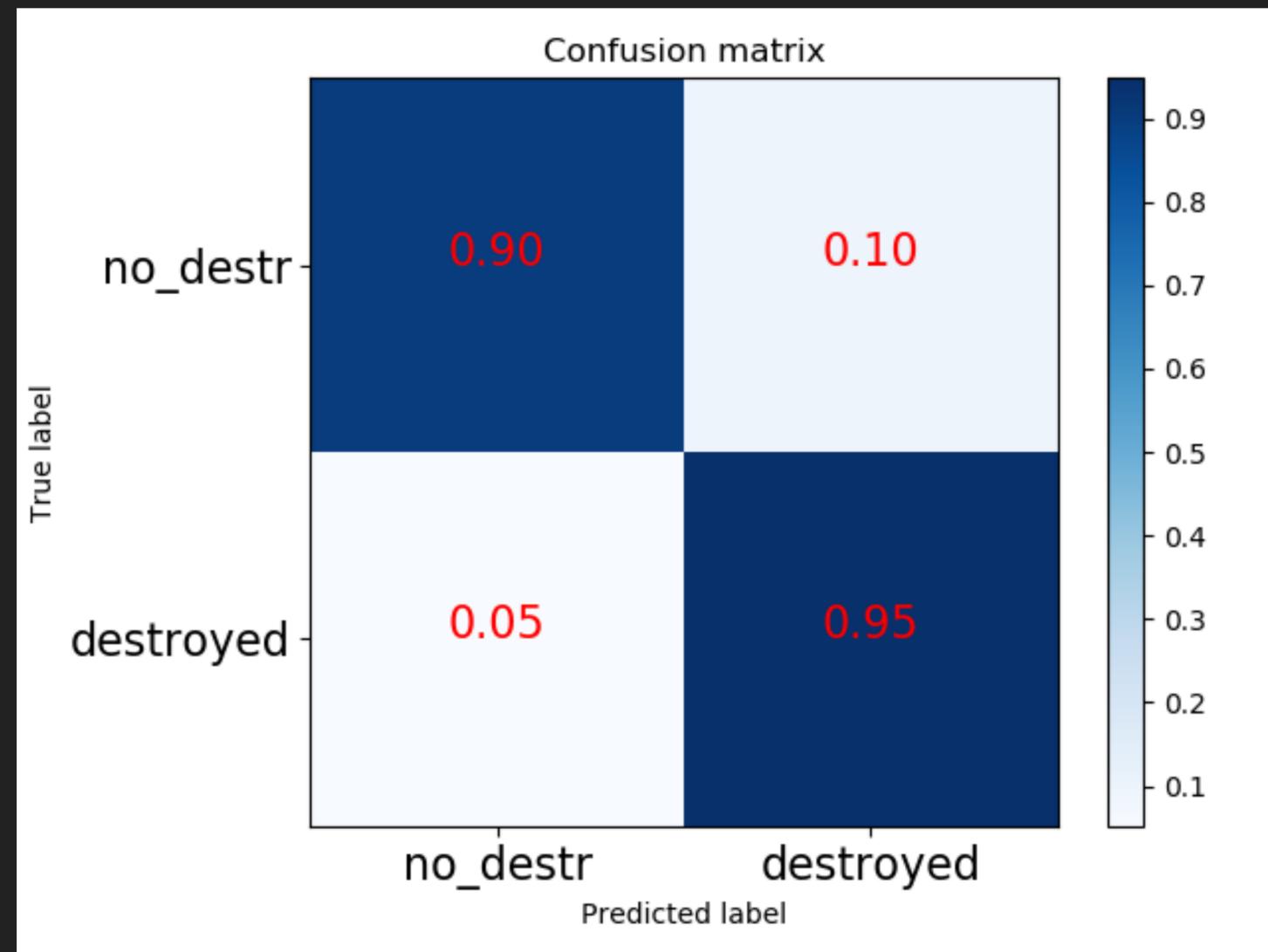
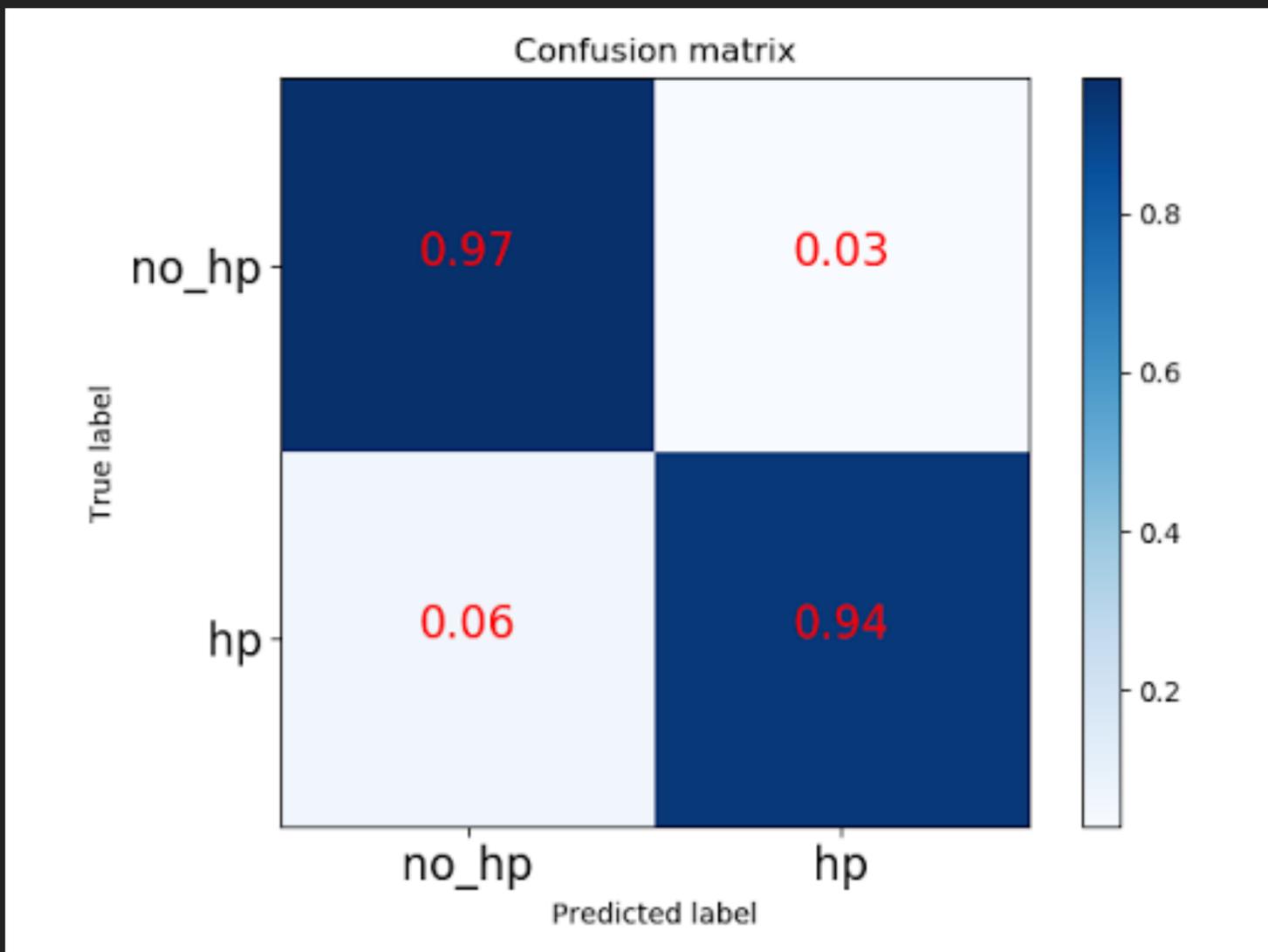


*Red: predictions*



**Urbanization patterns in Darfur**  
 Villages inside empty circles then isolated huts

**Urbanization patterns in Uganda**  
 – out of country generalization  
 Micro-groupings of huts  
 along criss-crossing roads



**AMNESTY  
INTERNATIONAL**



**@alkalait**



**@laure\_delisle**



**@milena\_iul**



**@SnazzyAzzy**



**@sherifea**



**@ArchydeB**

**2018**

# **TROLL PATROL: STUDYING ABUSE AGAINST WOMEN ON TWITTER**

**TRIGGER**

**WARNING**

 **Governmental** (@Governmental) · Jul 13  
Replying to @HackneyAbbott  
this **fat** retarded black **bitch** thinks you should be forced to feed and house a bunch of violence foreign invaders. i strongly disagree.

 **Governmental** (@Governmental) · Jul 13  
@HackneyAbbott Piss off you disgusting useless **fat bitch!** You're a parasite alien looking to silence native people for your power.

 **Governmental** (@Governmental) · 10/11/2016, 23:33  
Tasmina needs to be grabbed by the pussy. 🤔🤔🤔 #bbcqt

 **Governmental** (@Governmental) · 10/11/2016, 23:36  
Tasmina needs to be poked with a massive dildo #bbcqt

 **Governmental** (@Governmental) · Jul 14  
Replying to @HackneyAbbott  
You forgot "fat disgusting obese chicken-loving **nigger**"

 **Governmental** (@Governmental) · Jul 14  
Replying to @HackneyAbbott  
An acid attack would probably make your face look better you fat **nigger**

 **Governmental** (@Governmental) · 02/12/2016, 07:41 from Poplar, London  
Someone jo cox Anna sourby please

# STUDY: ML TO HUMANS TO ML TO HUMANS

- ▶ Build a dataset with **ML prefilter**
- ▶ **Importance sampling** to
  - ▶ reduce variance
  - ▶ drive engagement
- ▶ **Human Crowdsourcing**
- ▶ **Data Analysis with Bootstrap**
- ▶ **Train Deep model and benchmark**
- ▶ **Carefully and expertly report and go public!**
  - ▶ **Very sensitive topic, human rights expertise!**

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INTERNATIONAL



## TROLL PATROL FINDINGS

Using Crowdsourcing, Data Science & Machine Learning to Measure Violence and Abuse against Women on Twitter

Welcome to the findings of our Troll Patrol project: a joint effort by human rights researchers, technical experts and thousands of online volunteers to build the world's largest crowd-sourced dataset of online abuse against women.

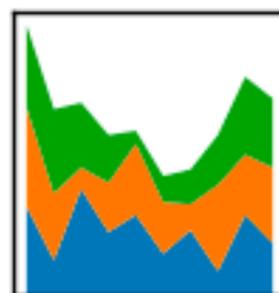
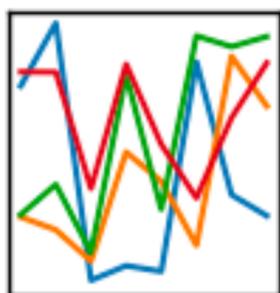
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These findings are the result of a collaboration between Amnesty International and **Element AI**, a global artificial intelligence software product company. Together, we surveyed millions of tweets received by



pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



Bloomberg

Technology

# Twitter Is 'Toxic Place for Women,' Says Amnesty International

Together with Element AI, the human rights watchdog quantified what women on Twitter have known for a long time

TIME

U.S. POLITICS WORLD TECH ENTERTAINMENT

WORLD • SOCIAL MEDIA

## 'A Toxic Place for Women.' A New Study Reveals the Scale of Abuse on Twitter

MIT Technology Review

Topics+

Intelligent Machines

### Female black journalists and politicians get sent an abusive tweet every 30 seconds

WIRED

EMILY DREYFUSS SECURITY 12.18.18 12:00 AM

## TWITTER IS INDEED TOXIC FOR WOMEN, AMNESTY REPORT SAYS



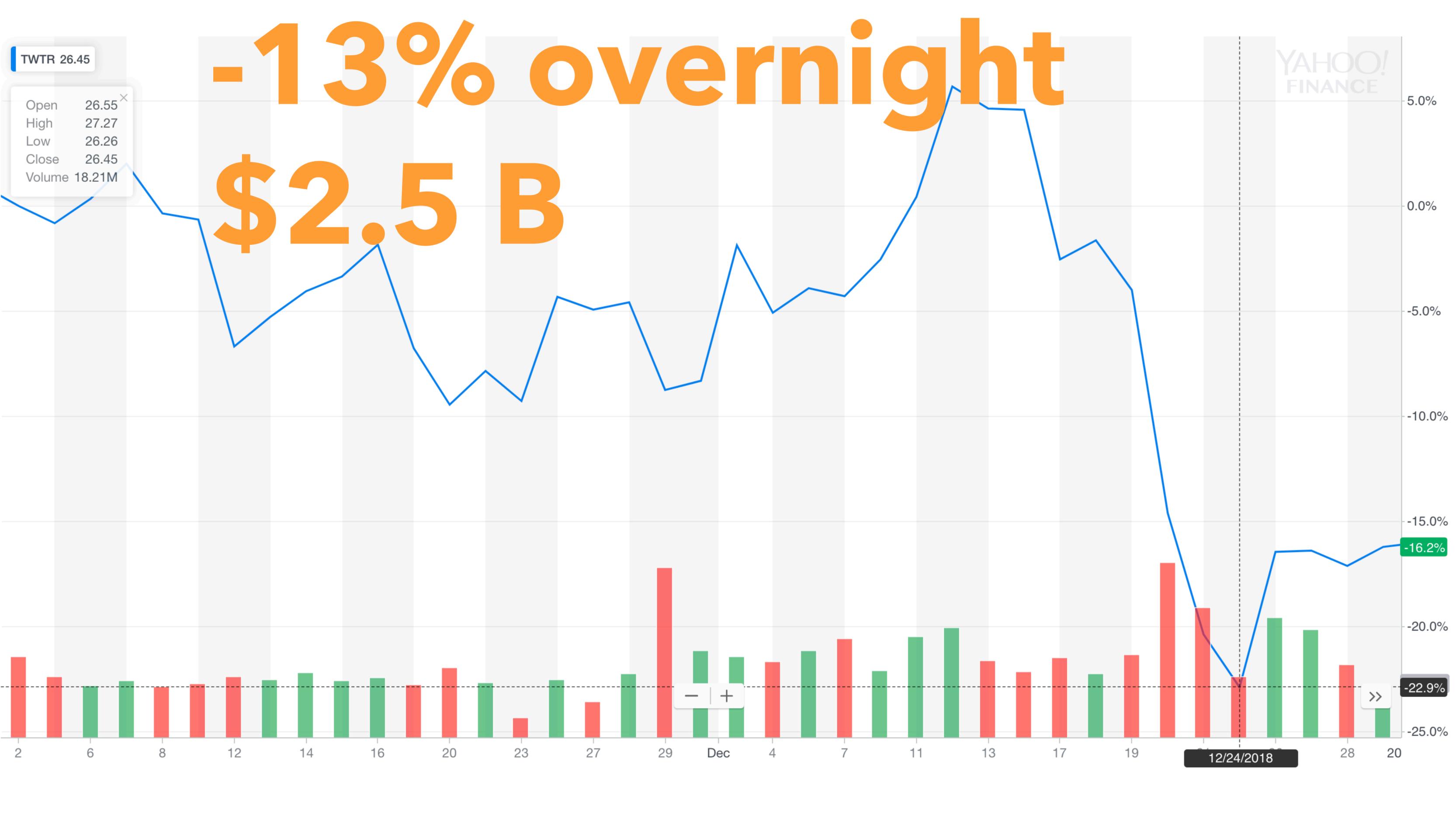
Publication	Link
Wired	<a href="https://www.wired.com/story/amnesty-report-twitter-abuse-women/">https://www.wired.com/story/amnesty-report-twitter-abuse-women/</a>
FT	<a href="https://www.ft.com/content/1091e116-0224-11e9-9d16-15343032ee1">https://www.ft.com/content/1091e116-0224-11e9-9d16-15343032ee1</a>
Gizmodo	<a href="https://gizmodo.com/we-finally-have-some-hard-data-on-how-much-twitter-quick-1531136903">https://gizmodo.com/we-finally-have-some-hard-data-on-how-much-twitter-quick-1531136903</a>
Shropshire Star	<a href="https://www.shropshirestar.com/news/uk-news/2019/12/15/diane-abbott-condemns-twitter-over-thousands-of-racist-and-misogynist-tweets/">https://www.shropshirestar.com/news/uk-news/2019/12/15/diane-abbott-condemns-twitter-over-thousands-of-racist-and-misogynist-tweets/</a>
Montreal Gazette	<a href="https://montrealgazette.com/business/local-business/element-ai-partners-with-amnesty-international-to-study-online-abuse">https://montrealgazette.com/business/local-business/element-ai-partners-with-amnesty-international-to-study-online-abuse</a>
Guardian	<a href="https://www.theguardian.com/politics/2019/dec/15/diane-abbott-calls-for-twitter-to-clamp-down-on-hate-speech">https://www.theguardian.com/politics/2019/dec/15/diane-abbott-calls-for-twitter-to-clamp-down-on-hate-speech</a>
Bloomberg	<a href="https://www.bloomberg.com/news/articles/2019-12-15/twitter-is-toxic-place-for-women-says-amnesty-international">https://www.bloomberg.com/news/articles/2019-12-15/twitter-is-toxic-place-for-women-says-amnesty-international</a>
Le Devoir	<a href="https://www.ledevoir.com/societe/543020/quand-les-traites-s-en-prennent-aux-femmes-sur-twitter">https://www.ledevoir.com/societe/543020/quand-les-traites-s-en-prennent-aux-femmes-sur-twitter</a>
Engadget	<a href="https://www.engadget.com/2019/12/15/women-are-abused-every-30-seconds-on-twitter">https://www.engadget.com/2019/12/15/women-are-abused-every-30-seconds-on-twitter</a>
Time	<a href="http://time.com/5452360/twitter-online-abuse-women-amnesty-international-study/">http://time.com/5452360/twitter-online-abuse-women-amnesty-international-study/</a>
Packl	<a href="https://hub.packtpub.com/troll-patrol-report-amnesty-international-and-element-ai-use-machine-learning-to-understand-online-abuse-against-women/">https://hub.packtpub.com/troll-patrol-report-amnesty-international-and-element-ai-use-machine-learning-to-understand-online-abuse-against-women/</a>
Jakarta Post	<a href="https://www.thejakartapost.com/news/2019/12/15/twitter-is-toxic-place-for-women-says-amnesty-international.html">https://www.thejakartapost.com/news/2019/12/15/twitter-is-toxic-place-for-women-says-amnesty-international.html</a>
NewsTalk	<a href="https://www.newstalk.com/Study-reveals-scale-of-online-abuse-against-women">https://www.newstalk.com/Study-reveals-scale-of-online-abuse-against-women</a>
Hindustan Times	<a href="https://m.hindustantimes.com/world-news/twitter-is-toxic-place-for-women-says-amnesty-international/story-7y70N1zAMJ4OnoOR0VfP.html">https://m.hindustantimes.com/world-news/twitter-is-toxic-place-for-women-says-amnesty-international/story-7y70N1zAMJ4OnoOR0VfP.html</a>
La Presse	<a href="https://www.lapresse.ca/techno/reseaux-sociaux/2019/12/15/020409-les-femmes-noires-premieres-cibles-des-injures-sur-twitter.php">https://www.lapresse.ca/techno/reseaux-sociaux/2019/12/15/020409-les-femmes-noires-premieres-cibles-des-injures-sur-twitter.php</a>
Business Standard	<a href="https://www.business-standard.com/article/international/amnesty-international-explains-how-twitter-is-a-toxic-place-for-women-115121500254_1.html">https://www.business-standard.com/article/international/amnesty-international-explains-how-twitter-is-a-toxic-place-for-women-115121500254_1.html</a>
The Independent	<a href="https://www.independent.co.uk/life-style/women/twitter-women-sexist-amnesty-international-diane-abbott-report-a8000426.html">https://www.independent.co.uk/life-style/women/twitter-women-sexist-amnesty-international-diane-abbott-report-a8000426.html</a>
Business Today Kenya	<a href="https://www.businesstoday.co.ke/women-abused-twitter-every-30-seconds-new-study-reveals/">https://www.businesstoday.co.ke/women-abused-twitter-every-30-seconds-new-study-reveals/</a>
Press Gazette	<a href="https://www.pressgazette.co.uk/1-in-every-14-tweets-directed-at-women-journalists-is-abusive-or-problematic-new-online-abuse-study-shows/">https://www.pressgazette.co.uk/1-in-every-14-tweets-directed-at-women-journalists-is-abusive-or-problematic-new-online-abuse-study-shows/</a>
Mashable	<a href="https://mashable.com/article/amnesty-study-twitter-abuse-women?europe=true&amp;utm_source=twitter">https://mashable.com/article/amnesty-study-twitter-abuse-women?europe=true&amp;utm_source=twitter</a>
Fast Company	<a href="https://www.fastcompany.com/9020304/a-woman-on-twitter-is-abused-every-30-seconds">https://www.fastcompany.com/9020304/a-woman-on-twitter-is-abused-every-30-seconds</a>
MIT Tech Review	<a href="https://www.technologyreview.com/2019/12/18/4female-black-journalists-and-politicians-get-sent-an-abusive-tweet-every-30-seconds/">https://www.technologyreview.com/2019/12/18/4female-black-journalists-and-politicians-get-sent-an-abusive-tweet-every-30-seconds/</a>
Evening Standard	<a href="https://www.standard.co.uk/tech/online-abuse-twitter-amnesty-international-element-ai-a4020076.html">https://www.standard.co.uk/tech/online-abuse-twitter-amnesty-international-element-ai-a4020076.html</a>
The Voice	<a href="http://www.voice-online.co.uk/article/diane-abbott-urges-twitter-address-abusive-tweets">http://www.voice-online.co.uk/article/diane-abbott-urges-twitter-address-abusive-tweets</a>
Mail and Guardian (South Africa)	<a href="https://mg.co.za/article/2019-12-15-women-across-political-spectrum-recvie-twitter-abuse-study">https://mg.co.za/article/2019-12-15-women-across-political-spectrum-recvie-twitter-abuse-study</a>
Daily Dot	<a href="https://www.dailydot.com/tebug/black-women-abuse-white-women-twitter-report/">https://www.dailydot.com/tebug/black-women-abuse-white-women-twitter-report/</a>
Nu (Netherlands)	<a href="https://www.nu.nl/internet/2637208/amnesty-twitter-beerpf-rouwen.html">https://www.nu.nl/internet/2637208/amnesty-twitter-beerpf-rouwen.html</a>
NRC (Netherlands)	<a href="https://www.nrc.nl/nieuws/2019/12/15/vrouwelijke-journalisten-en-politici-op-twitter-erms-per-30-seconden-beledigd-a3061044">https://www.nrc.nl/nieuws/2019/12/15/vrouwelijke-journalisten-en-politici-op-twitter-erms-per-30-seconden-beledigd-a3061044</a>
Talk Radio	<a href="https://talkradio.co.uk/news/diane-abbott-urges-twitter-crackdown-abusive-tweets-after-study-abuse-women-social-media">https://talkradio.co.uk/news/diane-abbott-urges-twitter-crackdown-abusive-tweets-after-study-abuse-women-social-media</a>
Al Africa	<a href="https://alafrika.com/stories/2019/12/15/15.html">https://alafrika.com/stories/2019/12/15/15.html</a>
Westfälische Rundschau	<a href="https://www.westfaelische-panorama.com/amnesty-studie-warn-tfrauen-vor-twitter-und-aussagen-an-hass-4210039215.html">https://www.westfaelische-panorama.com/amnesty-studie-warn-tfrauen-vor-twitter-und-aussagen-an-hass-4210039215.html</a>
Forbes	<a href="https://www.forbes.com/sites/uzmaeordogh/2019/12/15/troll-patrol-robots-prive-women-harasses-6-on-twitter/">https://www.forbes.com/sites/uzmaeordogh/2019/12/15/troll-patrol-robots-prive-women-harasses-6-on-twitter/</a>
The Journal (Ireland)	<a href="https://www.thejournal.ie/twitter-abuse-women-of-colour-440005-De201917amp1">https://www.thejournal.ie/twitter-abuse-women-of-colour-440005-De201917amp1</a>
Fortune	<a href="http://fortune.com/2019/12/15/twitter-women-amnesty-international/">http://fortune.com/2019/12/15/twitter-women-amnesty-international/</a>
Le Monde	<a href="https://www.lemonde.fr/pixels/article/2019/12/15/harcèlement-des-femmes-sur-twitter-amnesty-enforce-le-dou_5389413_4403996.html">https://www.lemonde.fr/pixels/article/2019/12/15/harcèlement-des-femmes-sur-twitter-amnesty-enforce-le-dou_5389413_4403996.html</a>
sky news	<a href="https://news.sky.com/story/tamp/diane-abbott-twitter-must-act-over-abuse-targeting-black-women-11554705">https://news.sky.com/story/tamp/diane-abbott-twitter-must-act-over-abuse-targeting-black-women-11554705</a>
The Telegraph	<a href="https://www.telegraph.co.uk/politics/2019/12/15/diane-abbott-urges-twitter-back-to-racist-misogynist-abuse-amp/">https://www.telegraph.co.uk/politics/2019/12/15/diane-abbott-urges-twitter-back-to-racist-misogynist-abuse-amp/</a>
Evening Standard (again)	<a href="https://www.standard.co.uk/news/uk/diane-abbott-condemns-twitter-over-thousands-of-racist-and-misogynistic-tweets-appearing-on-platform-a4019996.html?amp">https://www.standard.co.uk/news/uk/diane-abbott-condemns-twitter-over-thousands-of-racist-and-misogynistic-tweets-appearing-on-platform-a4019996.html?amp</a>
CNBC	<a href="https://www.cnbc.com/amp/2019/12/15/women-are-abused-every-30-seconds-on-twitter-new-research-finds.html">https://www.cnbc.com/amp/2019/12/15/women-are-abused-every-30-seconds-on-twitter-new-research-finds.html</a>
Washington Post	<a href="https://www.washingtonpost.com/technology/2019/12/15/social-media-crisis-after-senate-reports-facebook-appeals-naap-leads-protest-rump-attacks/?hpid=hp-top-news-technology-table-main-table">https://www.washingtonpost.com/technology/2019/12/15/social-media-crisis-after-senate-reports-facebook-appeals-naap-leads-protest-rump-attacks/?hpid=hp-top-news-technology-table-main-table</a>
The Jewish Chronicle	<a href="https://www.thejc.com/news/uk-news/amnesty-international-criticised-for-not-including-and-semi-fem-in-report-on-online-abuse-1.474093">https://www.thejc.com/news/uk-news/amnesty-international-criticised-for-not-including-and-semi-fem-in-report-on-online-abuse-1.474093</a>
BBC News Hour Radio	Tanya, live interview
BBC World News	Live TV, Azmina interviewed on stage
Channel 5	<a href="https://twitter.com/5_news/status/1075102933126163328?r=12">https://twitter.com/5_news/status/1075102933126163328?r=12</a>
Euronews TV	Azmina recorded interview over Skype
TRT Radio	<a href="https://www.youtube.com/watch?v=Q2GYSXASCA">https://www.youtube.com/watch?v=Q2GYSXASCA</a>
Quartz	<a href="https://qz.com/1486774/the-number-of-abusive-or-problematic-tweets-directed-at-women/">https://qz.com/1486774/the-number-of-abusive-or-problematic-tweets-directed-at-women/</a>
The Hill	<a href="https://thehill.com/policy/technology/421579-study-female-politicians-journalists-abused-every-30-seconds-on-twitter?amp">https://thehill.com/policy/technology/421579-study-female-politicians-journalists-abused-every-30-seconds-on-twitter?amp</a>
Huffington Post UK	<a href="https://m.huffpost.com/uk/entry/ghadow-home-secretary-diane-abbott-urges-twitter-to-do-more-to-facilitate-online-abuse-of-women_uk_7c19743e403d3dcaeb7d">https://m.huffpost.com/uk/entry/ghadow-home-secretary-diane-abbott-urges-twitter-to-do-more-to-facilitate-online-abuse-of-women_uk_7c19743e403d3dcaeb7d</a>
NY Mag	<a href="http://nymag.com/intelligencer/2019/12/study-finds-black-women-on-twitter-face-more-abuse.html">http://nymag.com/intelligencer/2019/12/study-finds-black-women-on-twitter-face-more-abuse.html</a>
BuzzFeed's @AM20M	Milena in streaming on 19h
KXK 1070 News Radio In Los Angeles	Milena recorded interview
Insh Radio	Milena recorded interview
CBC Daybreak	Julien recorded interview, airing on Thursday at 7:40am MTL time
Fox News	<a href="https://www.foxnews.com/tech/female-journalists-and-politicians-were-abused-every-30-seconds-on-twitter-in-2017-new-report-charges">https://www.foxnews.com/tech/female-journalists-and-politicians-were-abused-every-30-seconds-on-twitter-in-2017-new-report-charges</a>
Daily Times (Pakistan)	<a href="https://dailytimes.com.pk/334577/twitter-toxic-place-for-women-amnesty-international/">https://dailytimes.com.pk/334577/twitter-toxic-place-for-women-amnesty-international/</a>
Motherboard	<a href="https://motherboard.vice.com/en_us/article/yw74b/twitter-harassment-of-woman-journalists-and-politicians-happens-every-30-seconds-amnesty-study-finds">https://motherboard.vice.com/en_us/article/yw74b/twitter-harassment-of-woman-journalists-and-politicians-happens-every-30-seconds-amnesty-study-finds</a>
The Register	<a href="https://www.theregister.co.uk/2019/12/15/twitter_toxic_for_women/">https://www.theregister.co.uk/2019/12/15/twitter_toxic_for_women/</a>
Market Watch	<a href="https://www.marketwatch.com/story/amnesty-international-teams-with-ai-firm-to-quantify-abuse-targeting-women-of-color-on-twitter-2019-12-15">https://www.marketwatch.com/story/amnesty-international-teams-with-ai-firm-to-quantify-abuse-targeting-women-of-color-on-twitter-2019-12-15</a>
Daily Mail	<a href="https://www.dailymail.co.uk/news/article-6509345/New-Amnesty-International-study-reveals-women-recvie-one-abusive-tweet-30-seconds.html">https://www.dailymail.co.uk/news/article-6509345/New-Amnesty-International-study-reveals-women-recvie-one-abusive-tweet-30-seconds.html</a>
Ele	<a href="https://www.elf.com/culture/career-politics/a2561000/amnesty-international-study-troll-patrol-twitter-toxic-women/">https://www.elf.com/culture/career-politics/a2561000/amnesty-international-study-troll-patrol-twitter-toxic-women/</a>
LA Times	<a href="https://www.latimes.com/business/technology/la-fi-facebook-twitter-2019-12-15-story.html">https://www.latimes.com/business/technology/la-fi-facebook-twitter-2019-12-15-story.html</a>
NBC	<a href="https://www.nbcnews.com/news/world/female-journalists-politicians-received-abusive-hostile-tweets-every-30-seconds-n949501">https://www.nbcnews.com/news/world/female-journalists-politicians-received-abusive-hostile-tweets-every-30-seconds-n949501</a>
Euronews	<a href="https://www.euronews.com/2019/12/15/female-journalists-politicians-recvie-6-abusive-hostile-tweets-every-30-seconds-n949501">https://www.euronews.com/2019/12/15/female-journalists-politicians-recvie-6-abusive-hostile-tweets-every-30-seconds-n949501</a>
CNET	<a href="https://www.cnet.com/news/study-twitter-is-a-toxic-place-for-women/">https://www.cnet.com/news/study-twitter-is-a-toxic-place-for-women/</a>
Aios	<a href="https://www.aios.com/twitter-toxic-place-female-politicians-journalists-72944e1-7c93-4a6a-902b-fac05a9520c.html">https://www.aios.com/twitter-toxic-place-female-politicians-journalists-72944e1-7c93-4a6a-902b-fac05a9520c.html</a>
Japan Times	<a href="https://www.japantimes.co.jp/news/2019/12/15/world/female-politicians-journalists-color-u-s-a-face-rampant-online-abuse-amnesty/#.XBr6eRanyEc">https://www.japantimes.co.jp/news/2019/12/15/world/female-politicians-journalists-color-u-s-a-face-rampant-online-abuse-amnesty/#.XBr6eRanyEc</a>
Forbes 2	<a href="https://www.forbes.com/sites/daniblum/2019/12/15/amnesty-international-says-twitter-trolling-is-a-human-rights-abuse/#5a3dd30234ec">https://www.forbes.com/sites/daniblum/2019/12/15/amnesty-international-says-twitter-trolling-is-a-human-rights-abuse/#5a3dd30234ec</a>

ost Frank Michalak haben

# -13% overnight

## \$2.5 B

TWTR 26.45	
Open	26.55
High	27.27
Low	26.26
Close	26.45
Volume	18.21M



Layer (shortcut)

Satellite (1)

Neural net HP (2)

Relabeled (3)

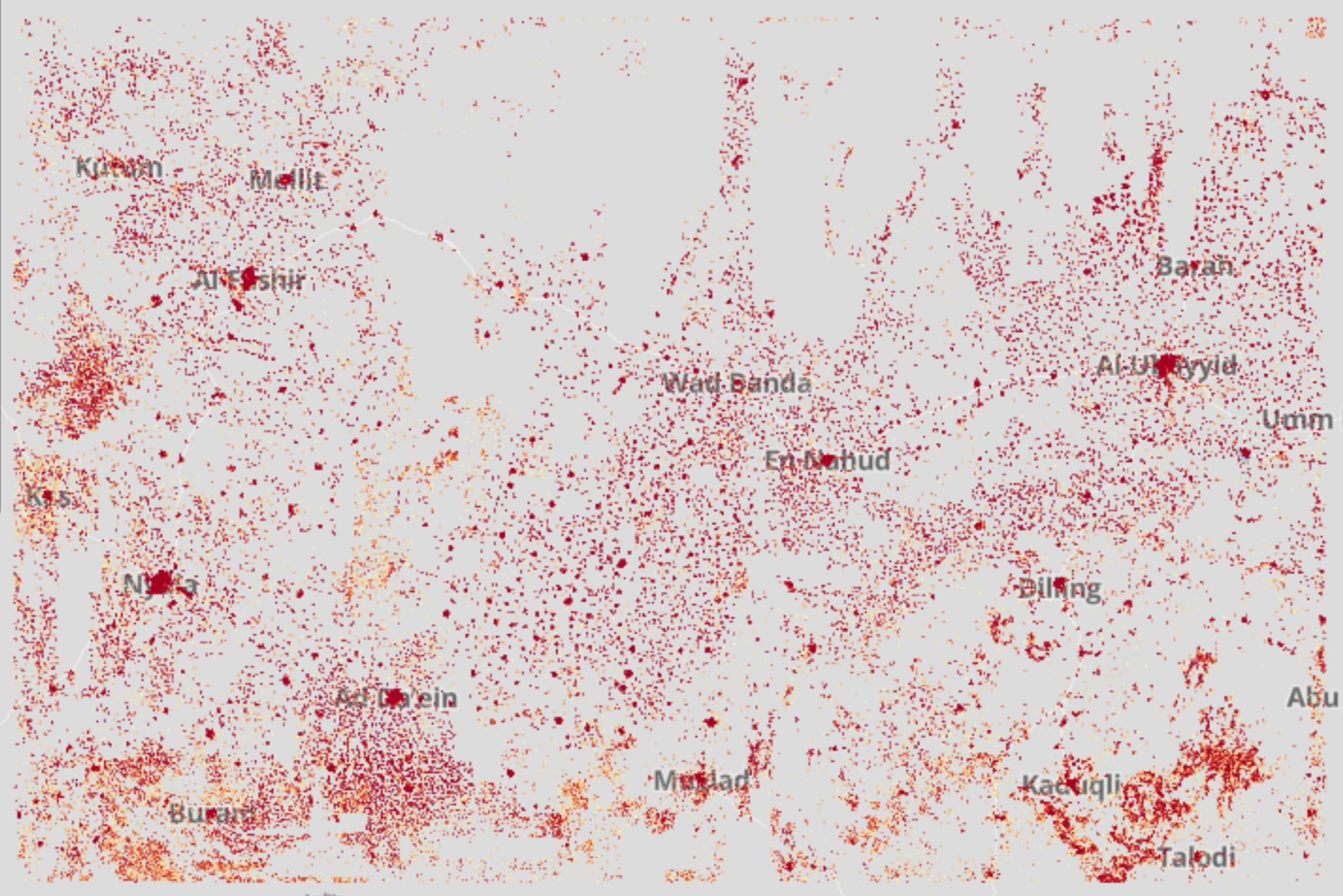
Decoders (4)

Neural net No HP (5)

HIU Destroyed (6)

HIU Damaged (7)

Grid (8)



Score

- 50
- 60
- 70
- 80
- 90
- 100

Ed Dueim

Ko

Abu Jibeha

Arut

Birao

4M\$



**PUBLIC**

**FREE**

**LOW RESOLUTION**





**Zhichao  
Lin**



**@alkalait**



**Michel  
Deudon**

# 2019 SATELLITE SUPERRESOLUTION

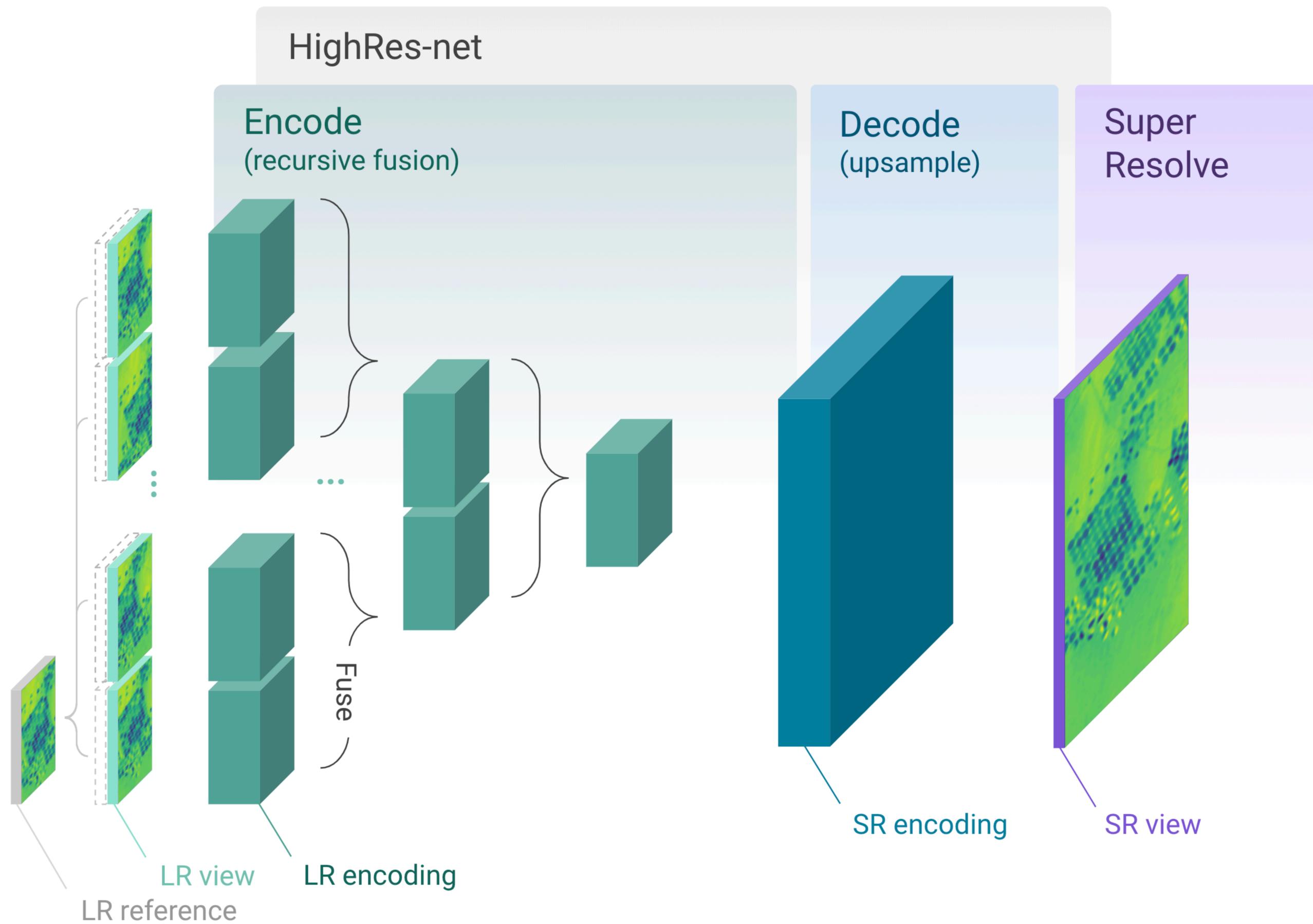


53

***enhance 57-19, track 45 left, stop***



CAN YOU  
ENHANCE THAT



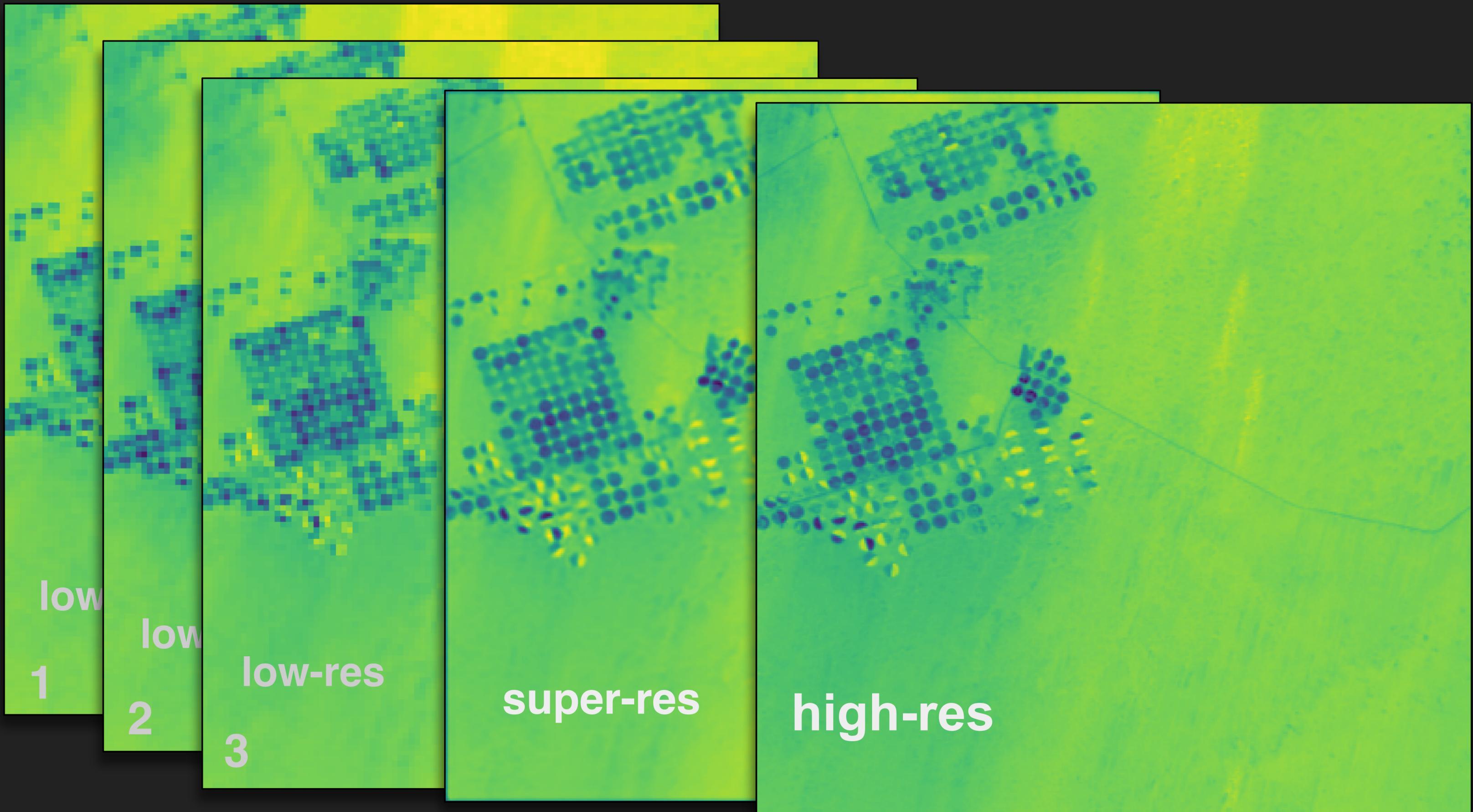


# Leaderboard

Name	Submissions	Last Submission	Best Submission	Best Score
rarefin	46	June 1, 2019, 4:34 a.m.	June 1, 2019, 4:34 a.m.	0.947388637793901
SuperPip	43	June 1, 2019, 2:39 a.m.	June 1, 2019, 2:39 a.m.	0.948844910272775
ledzeppelin	86	May 31, 2019, 9:58 p.m.	May 27, 2019, 5:25 p.m.	0.955016888143629
luis	9	May 30, 2019, 12:44 p.m.	May 30, 2019, 7:44 a.m.	0.9626599626701344
PIC4SeR	15	May 31, 2019, 9:59 p.m.	May 31, 2019, 4:59 p.m.	0.9721971077481462
EscVM	20	May 31, 2019, 9:31 p.m.	May 21, 2019, 6:05 a.m.	0.9785367146826757
SuperDeep	38	June 1, 2019, 2:17 a.m.	May 31, 2019, 9:17 p.m.	0.9807595119230784
NicolasRave	36	May 29, 2019, 9:11 p.m.	May 29, 2019, 4:11 p.m.	0.9838661966668009
shirok	6	June 1, 2019, 1:38 a.m.	May 31, 2019, 8:38 p.m.	0.9839087449897879
vural94	6	May 7, 2019, 5:41 p.m.	May 7, 2019, 12:41 p.m.	0.987814154597023
Herve	23	April 4, 2019, 10:27 p.m.	April 4, 2019, 5:27 p.m.	0.9892327635664252
henyau	7	May 21, 2019, 4:32 p.m.	May 21, 2019, 11:32 a.m.	0.991665293451024
Farhan	2	May 24, 2019, 3:09 p.m.	May 24, 2019, 10:09 a.m.	0.9930954868419666

# Results

Name	Submissions	Last Submission	Best Submission	Final Score
SuperPip	43	May 31, 2019, 9:39 p.m.	May 31, 2019, 9:39 p.m.	0.9474466476281652
rarefin	46	May 31, 2019, 11:34 p.m.	May 31, 2019, 11:34 p.m.	0.9477450367529225
ledzeppelin	86	May 31, 2019, 4:58 p.m.	May 27, 2019, 12:25 p.m.	0.9576339586408439
luis	9	May 30, 2019, 7:44 a.m.	May 30, 2019, 7:44 a.m.	0.9626599626701344
PIC4SeR	15	May 31, 2019, 4:59 p.m.	May 31, 2019, 4:59 p.m.	0.9721971077481462
EscVM	20	May 31, 2019, 4:31 p.m.	May 21, 2019, 6:05 a.m.	0.9785367146826757
SuperDeep	38	May 31, 2019, 9:17 p.m.	May 31, 2019, 9:17 p.m.	0.9807595119230784
NicolasRave	36	May 29, 2019, 4:11 p.m.	May 11, 2019, 10:21 a.m.	0.9838661966668009
shirok	6	May 31, 2019, 8:38 p.m.	May 31, 2019, 8:38 p.m.	0.9839087449897879
vural94	6	May 7, 2019, 12:41 p.m.	May 6, 2019, 4:35 p.m.	0.987814154597023
Herve	23	April 4, 2019, 5:27 p.m.	April 2, 2019, 10:12 a.m.	0.9892327635664252
henyau	7	May 21, 2019, 11:32 a.m.	May 17, 2019, 2:14 p.m.	0.991665293451024
Farhan	2	May 24, 2019, 10:09 a.m.	May 24, 2019, 10:09 a.m.	0.9930954868419666
willy	4	March 8, 2019, 11:57 a.m.	March 8, 2019, 11:57 a.m.	0.9934605649438908



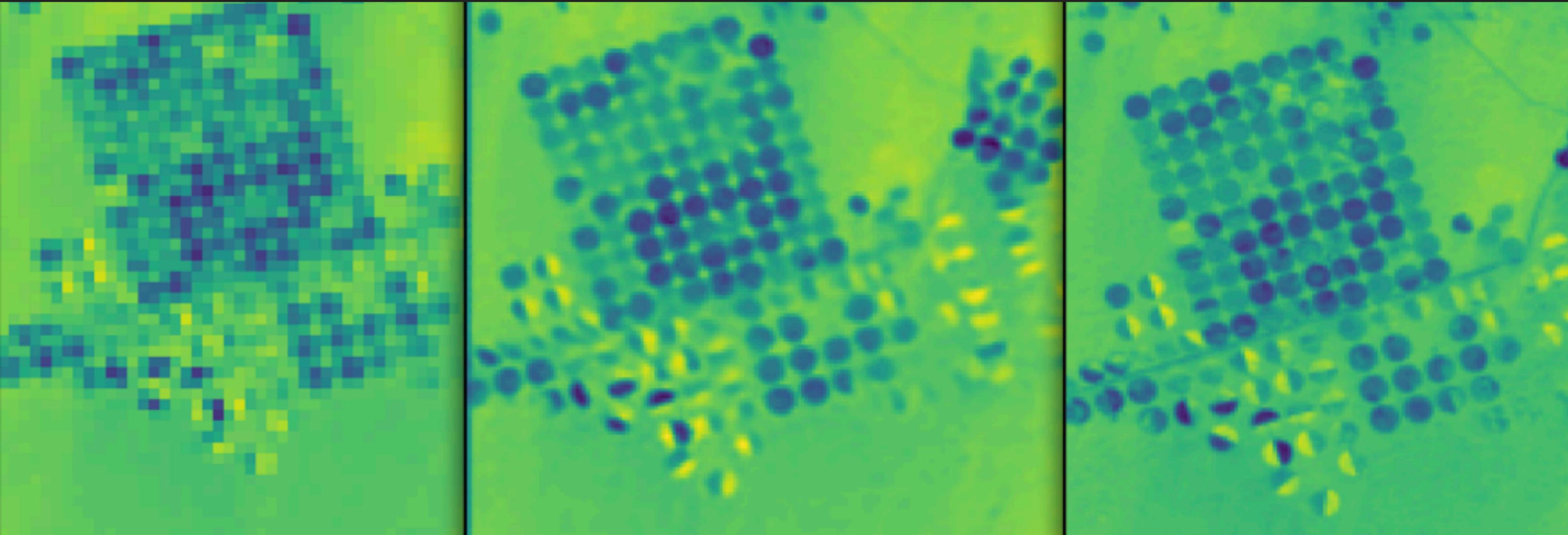
low  
1

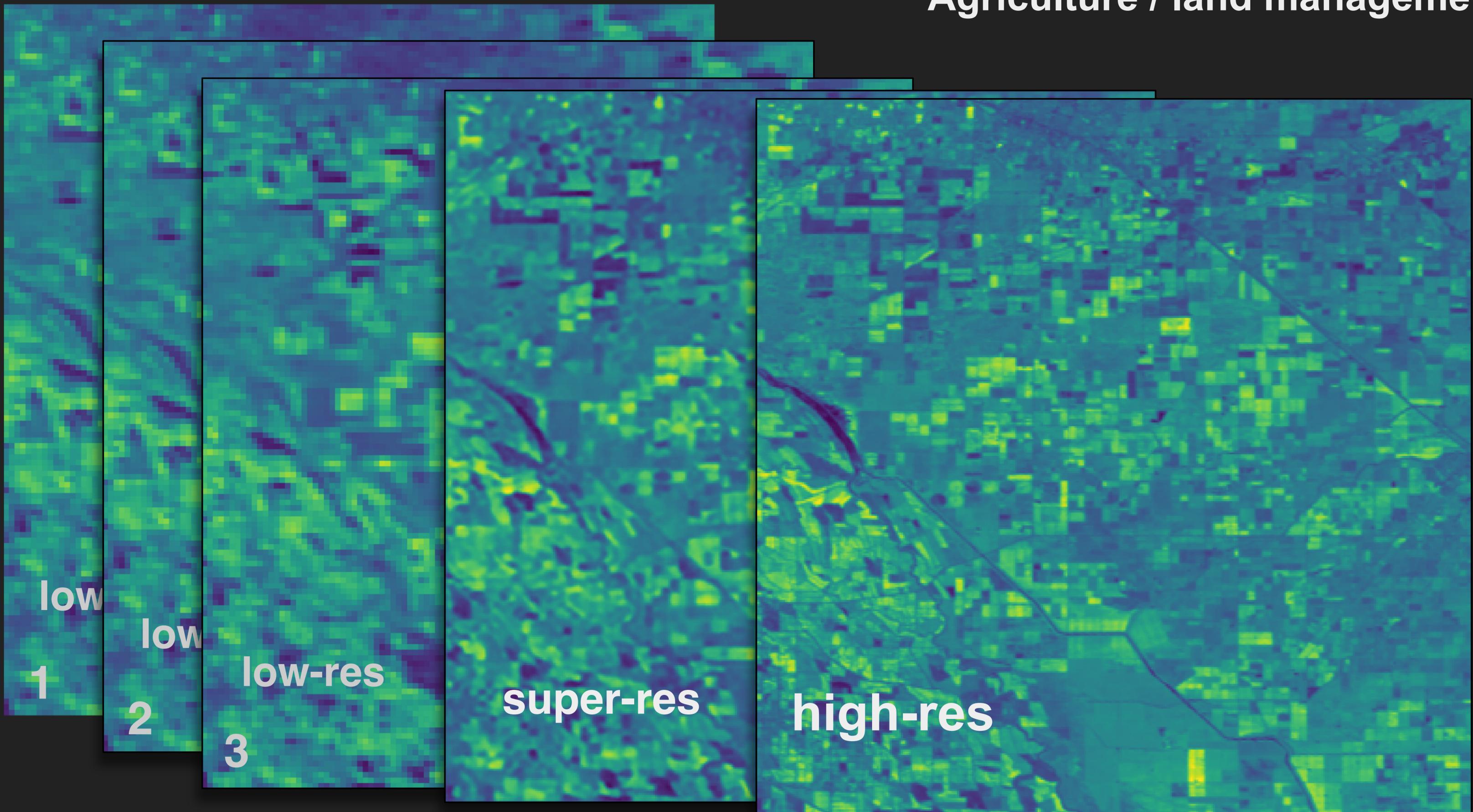
low  
2

low-res  
3

super-res

high-res





low

1

low

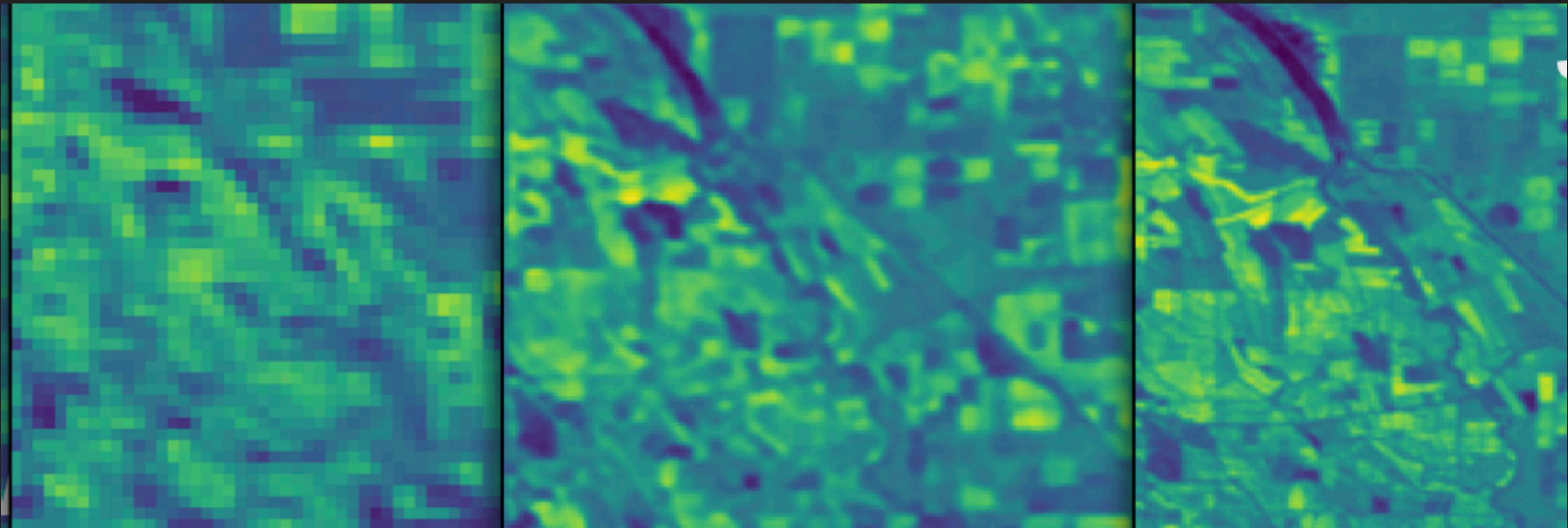
2

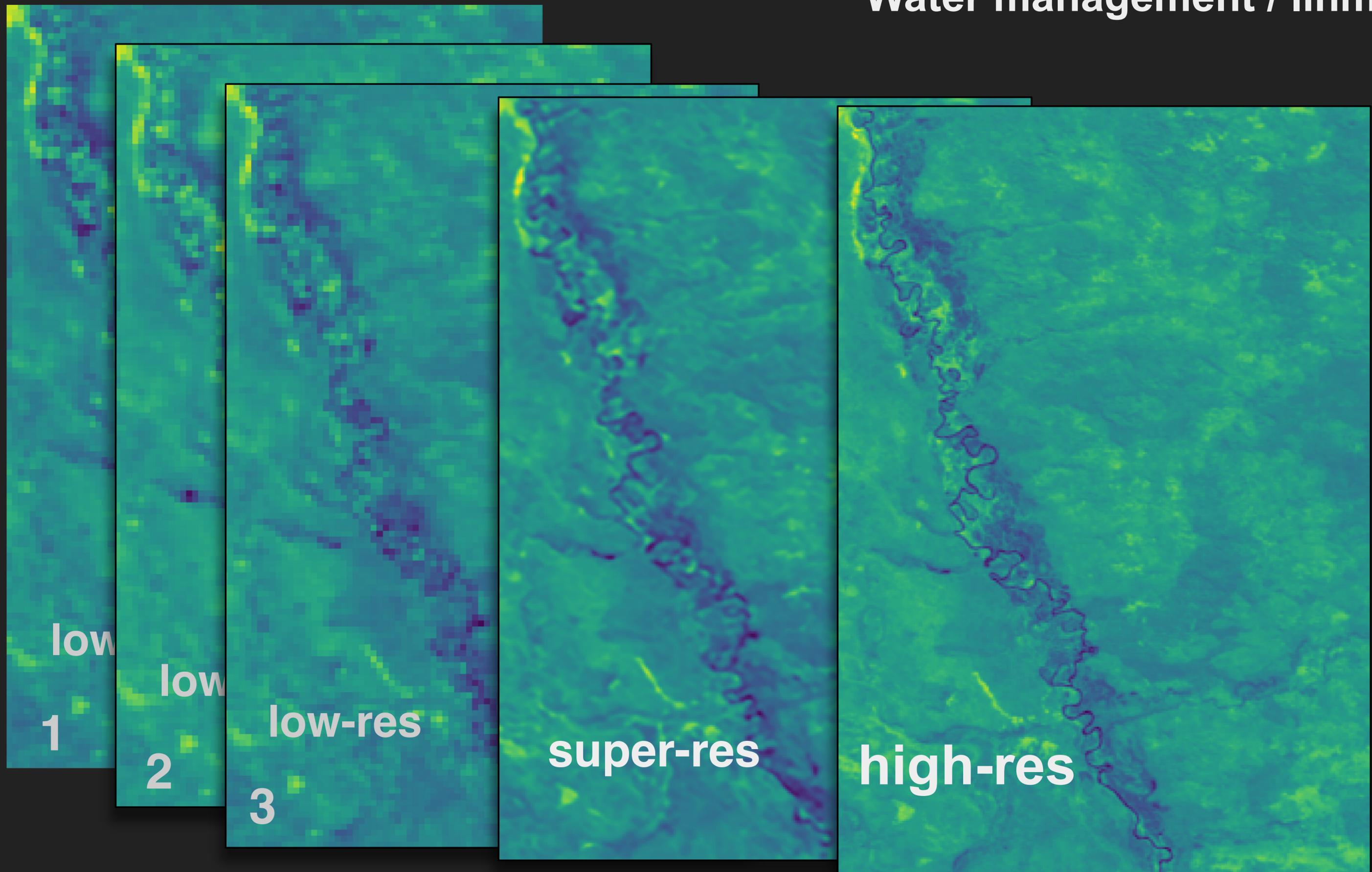
low-res

3

super-res

high-res





low

1

low

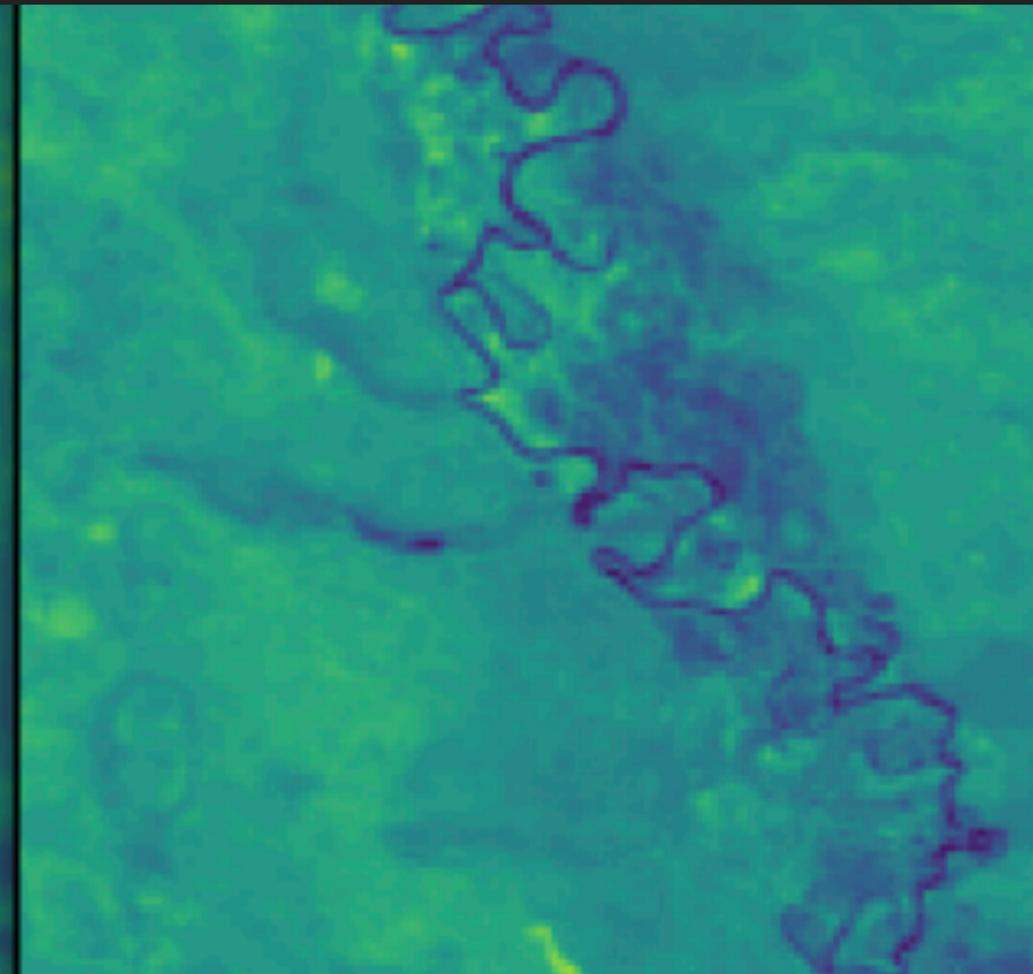
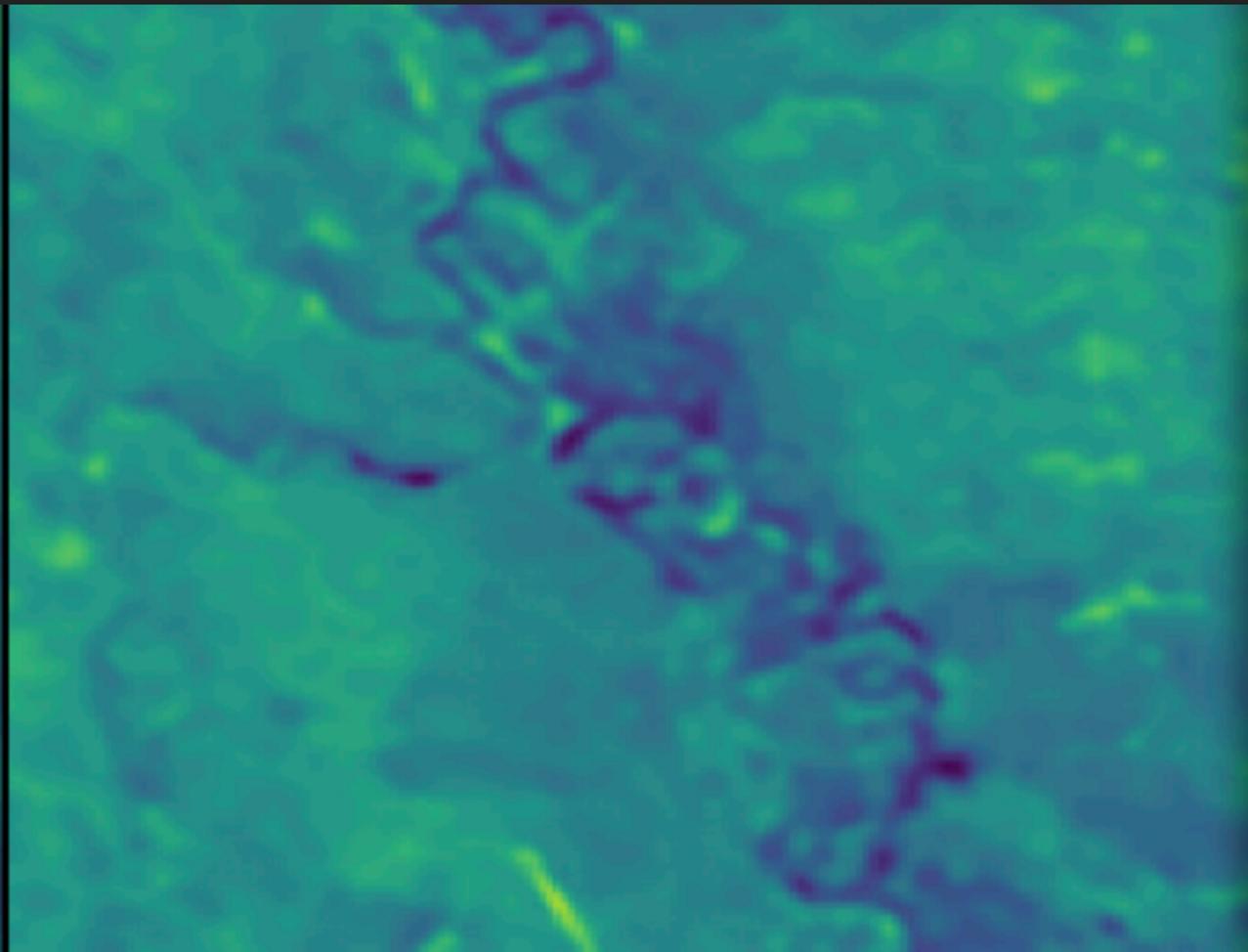
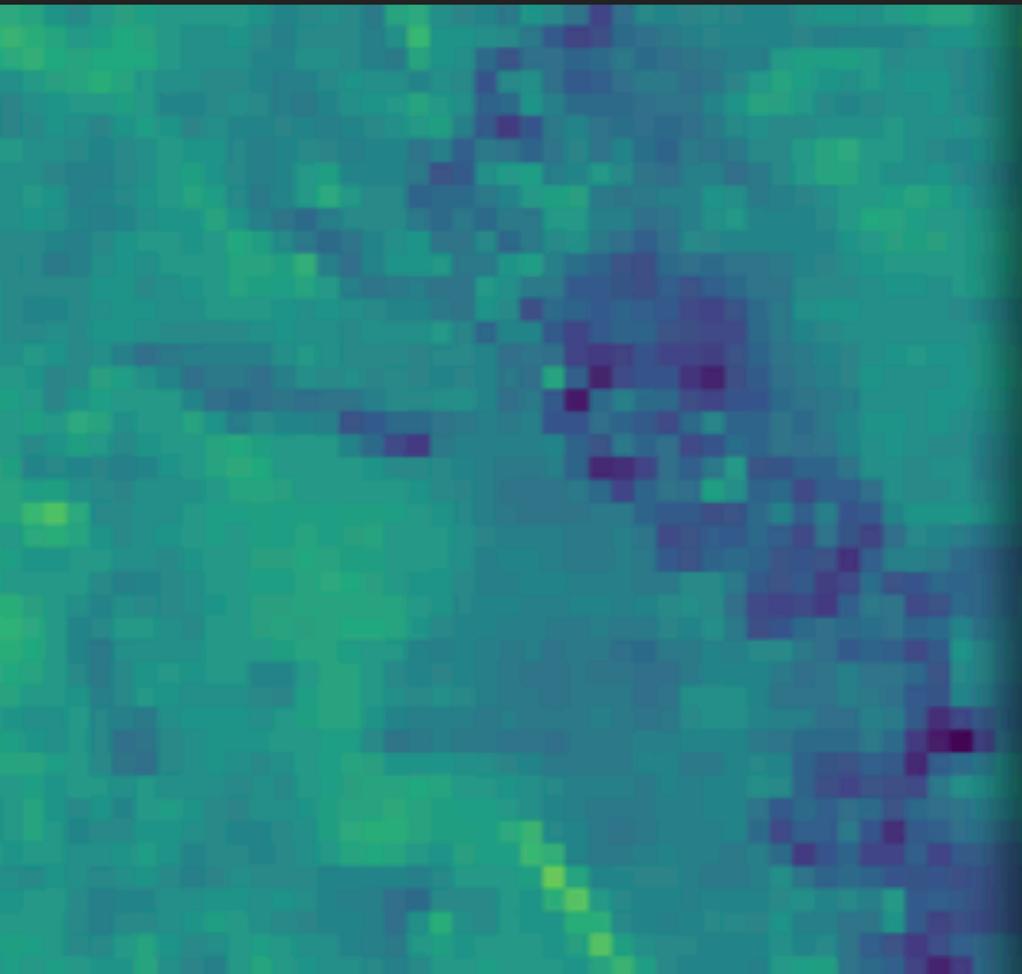
2

low-res

3

super-res

high-res



<https://www.elementai.com/news/2019/computer-enhance-please>



# Zuckerberg Takes Steps to Calm Facebook Employees

Industry Voice

Data Strategy Spotlight

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# Google employees demand transparency over secret work on censored search engine for China

Staff worry they have been unknowingly working on project 'Dragonfly' to develop technology helping Chinese government withhold information from citizens

Kate Conger and Daisuke Wakabayashi | Friday 17 August 2018 09:55 | 2 comments

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# Google walkout: global protests after sexual misconduct allegations

Thousands of employees from Tokyo to California stage demonstrations targeting workplace culture



## *Tech Workers Now Want to Know: What Are We Building This For?*



Laura Nolan, a software engineer in Ireland, left Google in June over the company's involvement in Project Maven, an effort to build artificial intelligence for the Department of Defense. Paulo Nunes dos Santos for The New York Times

**By Kate Conger and Cade Metz**

Oct. 7, 2018



SAN FRANCISCO — Jack Poulson, a Google research scientist,

## Tech Workers Now Want to Know: What Are We Building This For?



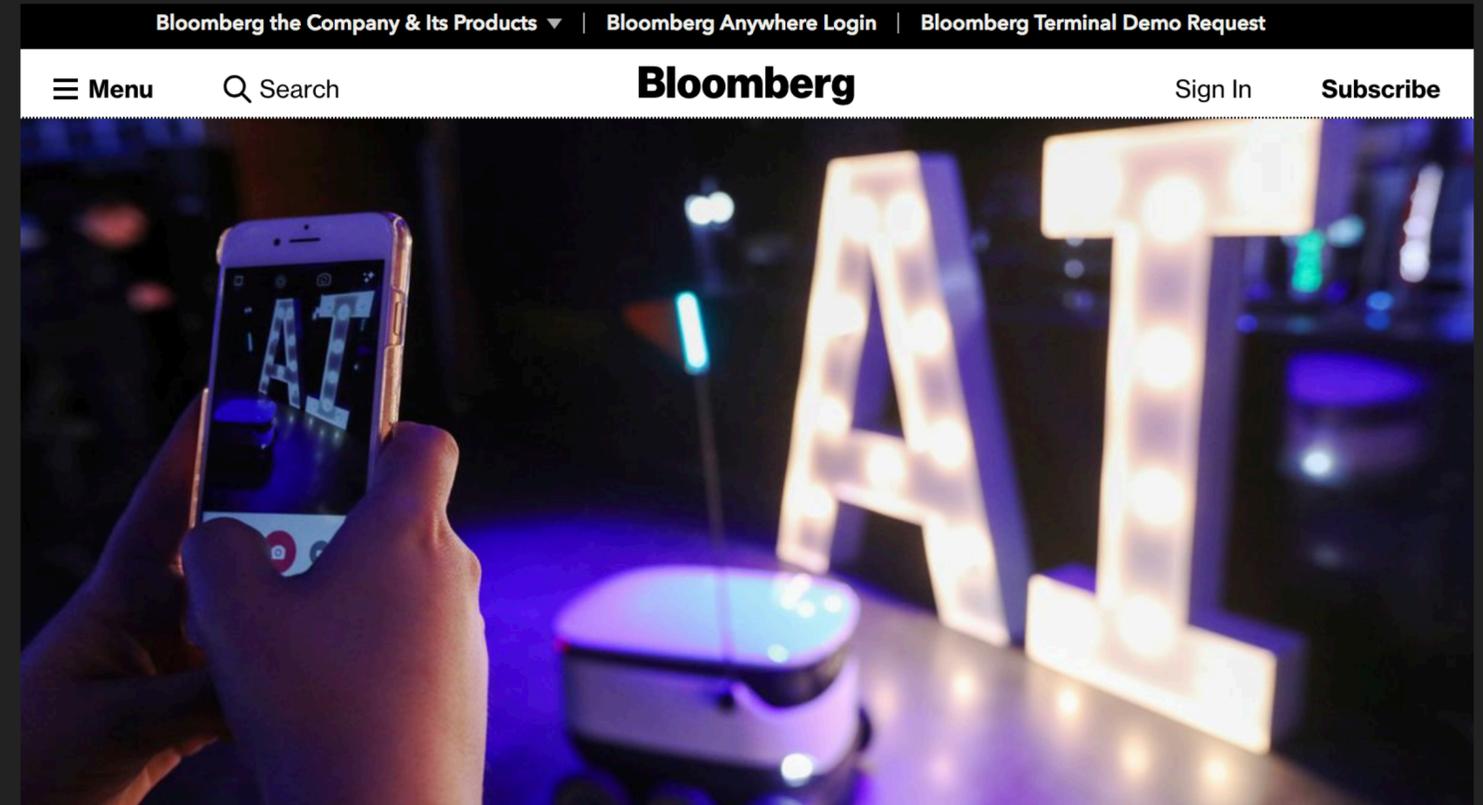
Laura Nolan, a software engineer in Ireland, left Google in June over the company's involvement in Project Maven, an effort to build artificial intelligence for the Department of Defense. Paulo Nunes dos Santos for The New York Times

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SAN FRANCISCO — Jack Poulson, a Google research scientist,



Photographer: Luke MacGregor/Bloomberg

Technology

## Just How Shallow is the Artificial Intelligence Talent Pool?

Research from Element AI indicates only 22,000 have right skills globally

By [Jeremy Kahn](#)

7 February 2018, 13:01 GMT

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Everyone agrees that the competition to hire people who know how to build artificial intelligence systems is intense. It's turned once-staid academic conferences into frenzied meet markets for corporate recruiters and driven

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[julien@elementai.com](mailto:julien@elementai.com) / [eai4good@elementai.com](mailto:eai4good@elementai.com)