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# NEWS TECHNOLOGY

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5 July 2013 Last updated at 12:24 GMT [Share](#) [f](#) [t](#) [e](#) [p](#)

## Human gestures perplex Asimo, Honda museum robot guide

Honda's popular robot Asimo faced problems with gesture recognition on its first day as a museum guide at the Miraikan science museum in Tokyo.

The machine struggled to differentiate between museum-goers raising their hands to ask a question and raising their hands to take photos, Associated Press reported.



Asimo is reported to have had problems identifying arm gestures

It is "working" as a tour guide at the museum for the next four weeks as a trial.

AT&T 9:58 PM

"I like fishing at the [river bank](#)"


Got it.

"So where can i find a [nice bank](#)"  
tap to edit

The best-rated one i found is wells fargo bank on solano ave, which averages 3½ stars.

15 Results  
Nearby

Wells fargo bank 1800 solano ave ★★★★ 14 reviews on yelp	0.8 mi
Wells fargo bank 1095 university ave	1.2 mi



Why is this not an issue for us, humans?

# Beyond Alexa and Siri



# 1. Artificial neural networks

Architecture, learning

# 2. The curse of statistical abstraction

Real-world issues, causes, lack of understanding

# 3. Human “interaction engine”

Understudied, key ingredients

# Architecture

A four pixel camera



# Architecture

Categorize images



solid



vertical



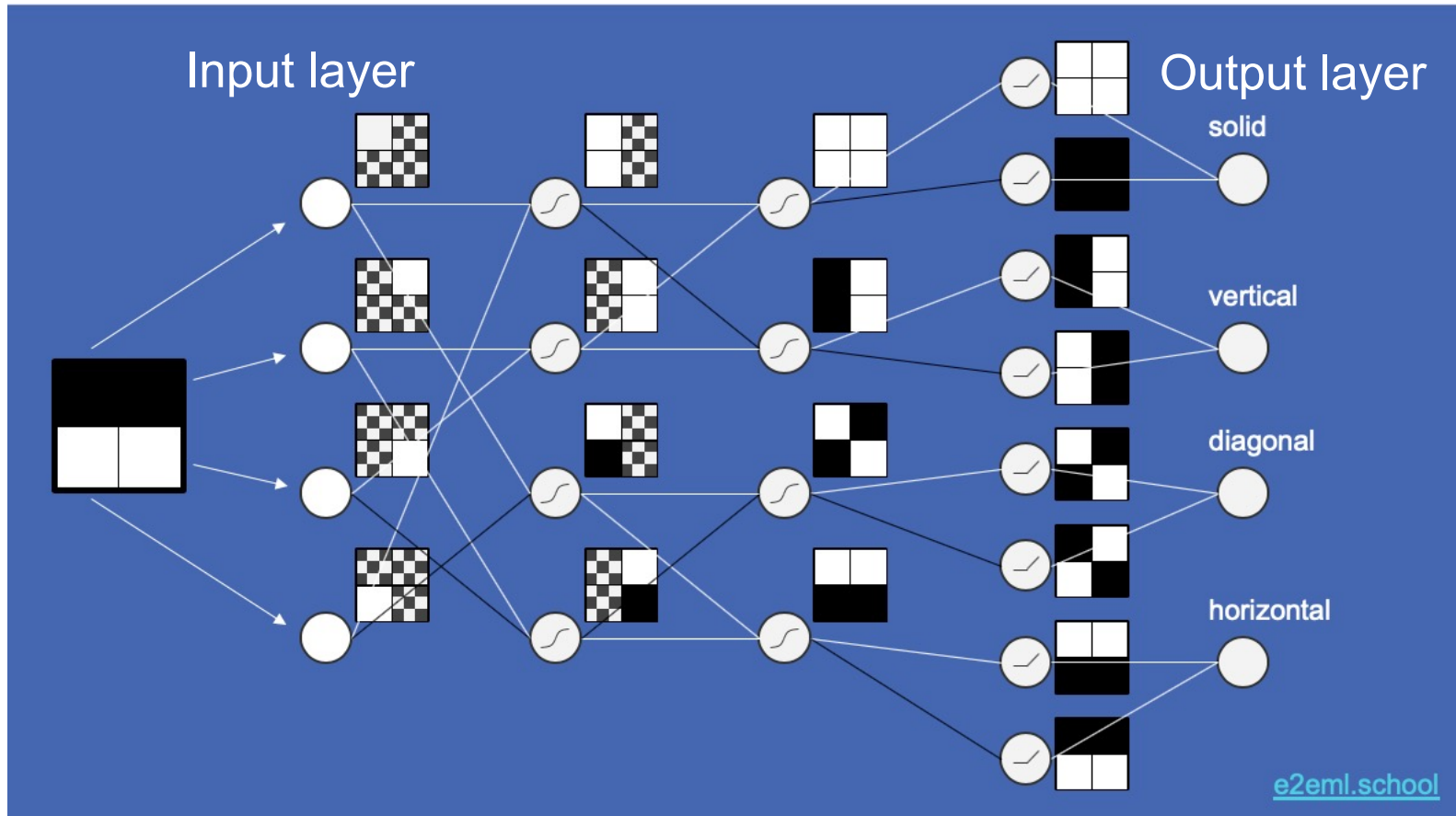
diagonal



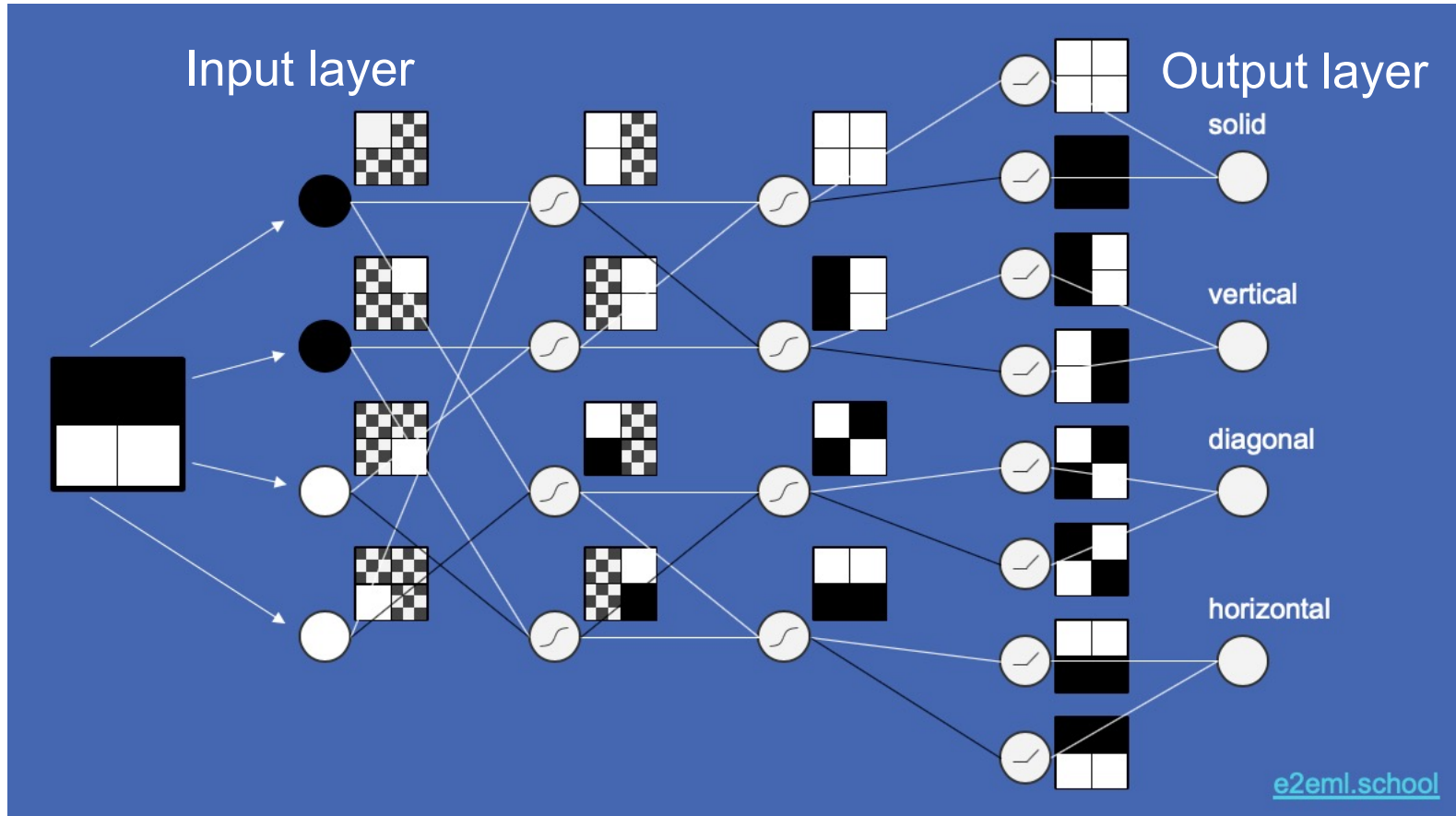
horizontal



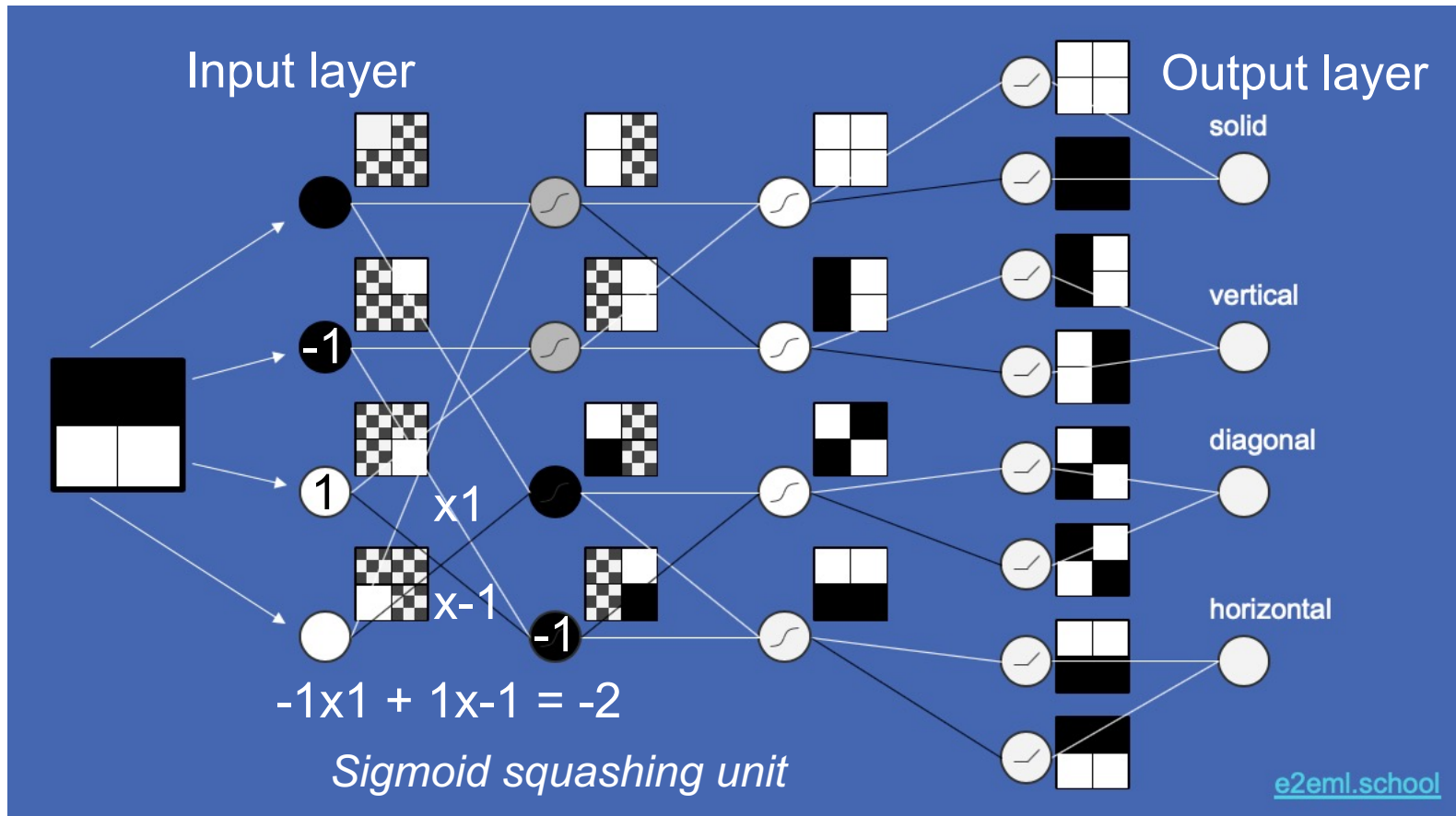
# Architecture



# Architecture

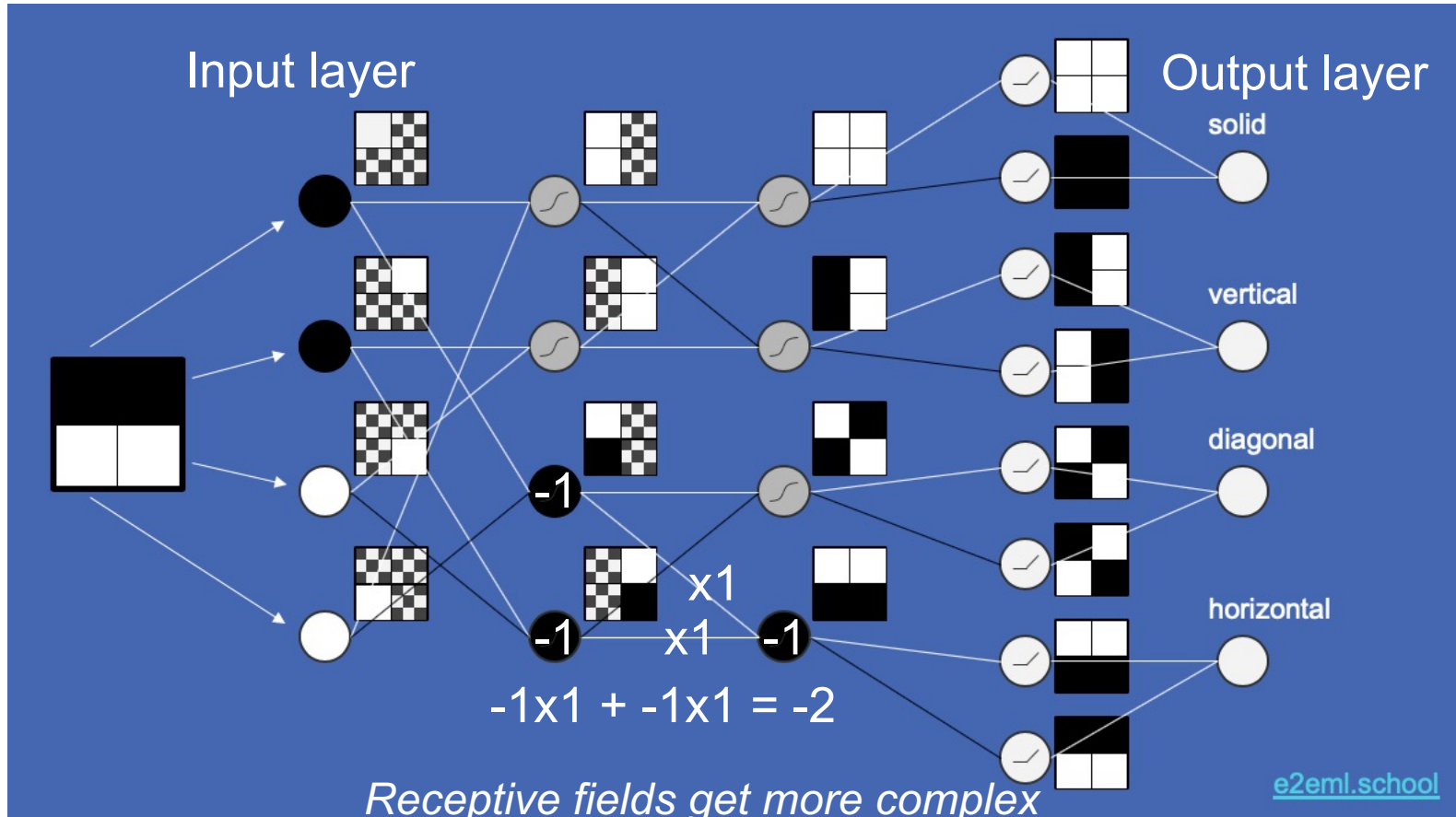


# Architecture

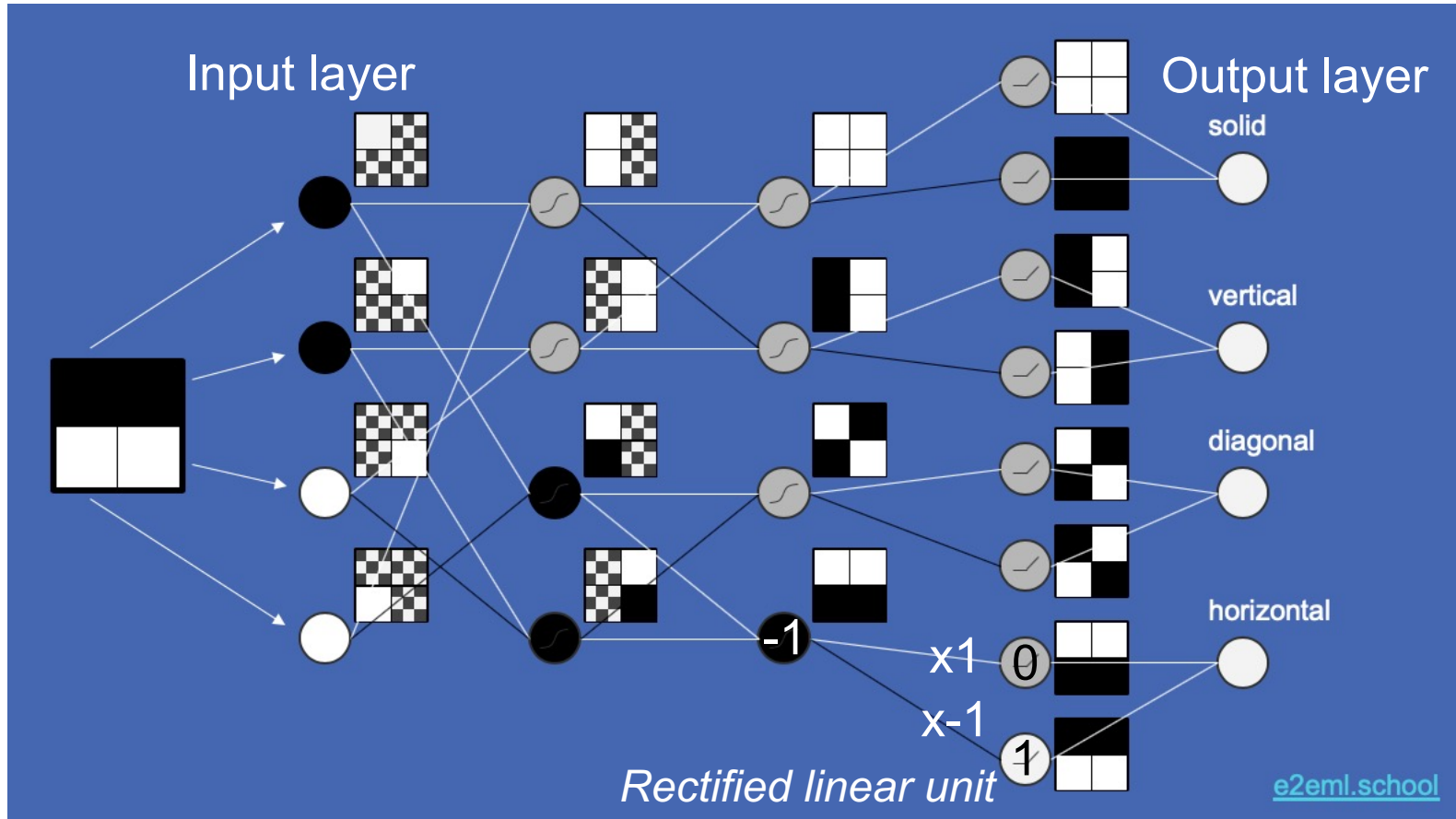




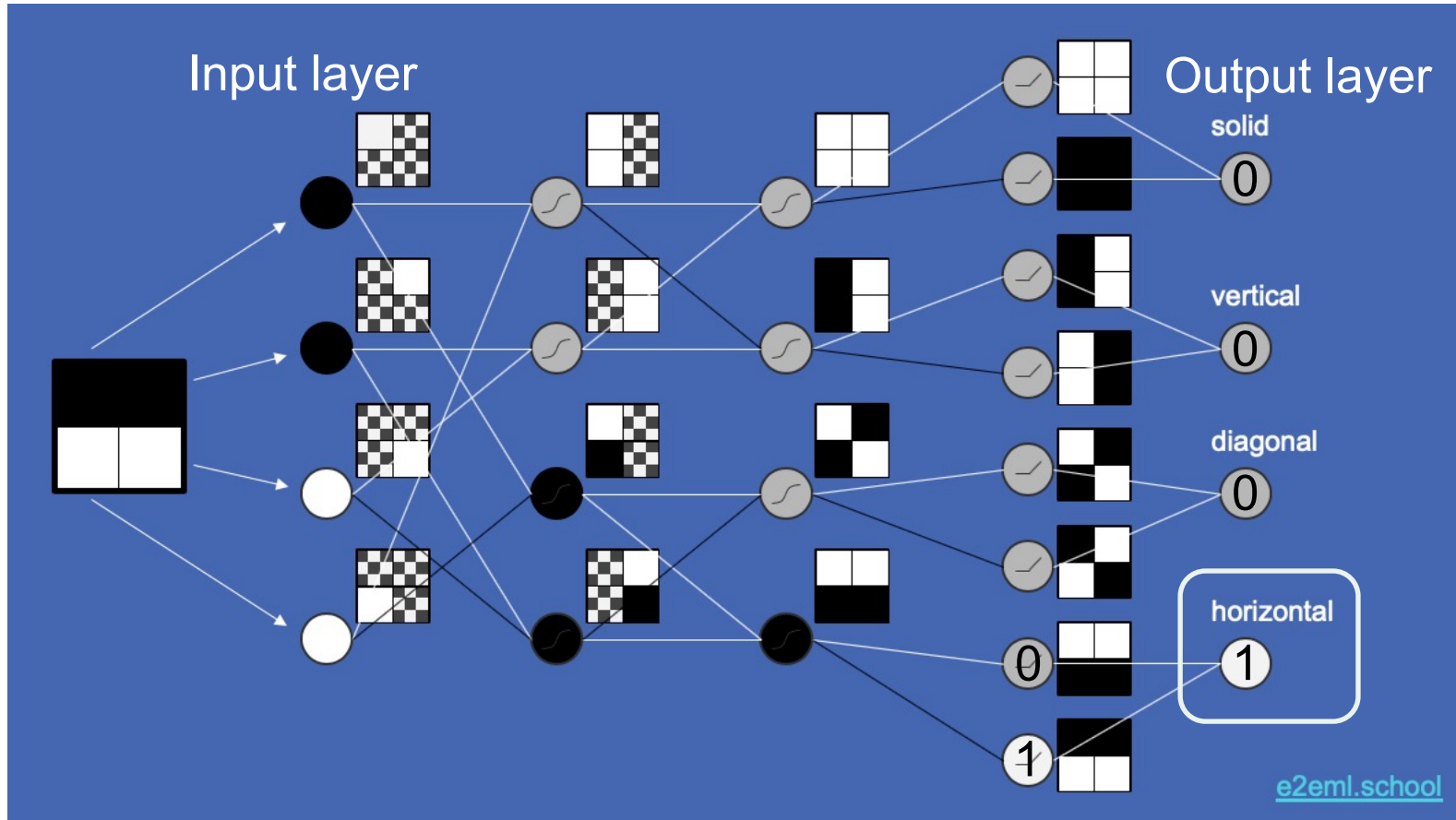
# Architecture



# Architecture



# Architecture

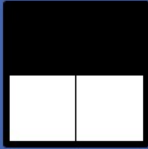


## Learning (of weights)

**The C/ake Server**

# Learning (of weights)

Errors

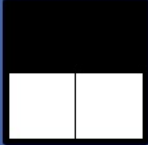






truth	0.	solid
	0.	vertical
	0.	diagonal
	1.	horizontal

[e2eml.school](http://e2eml.school)

## Learning (of weights)

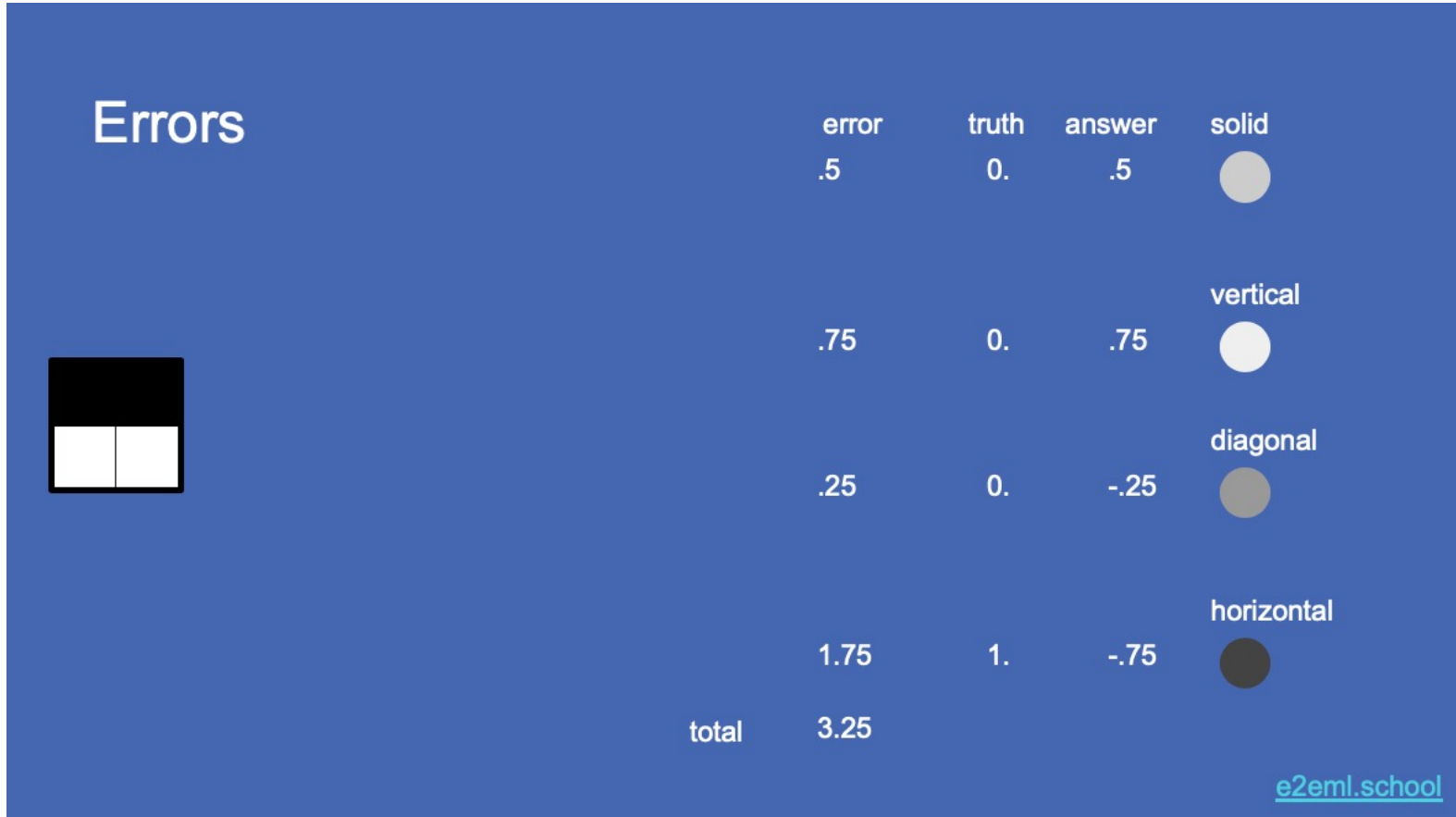
Errors



truth	answer	solid
0.	.5	
0.	.75	
0.	-.25	
1.	-.75	

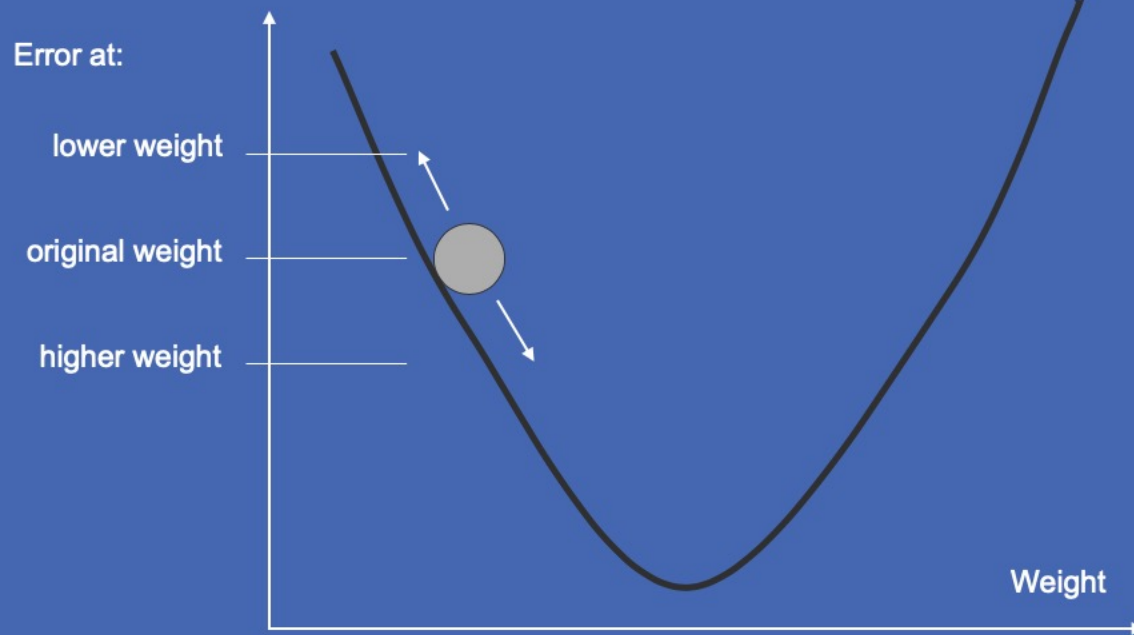
[e2eml.school](http://e2eml.school)

# Learning (of weights)



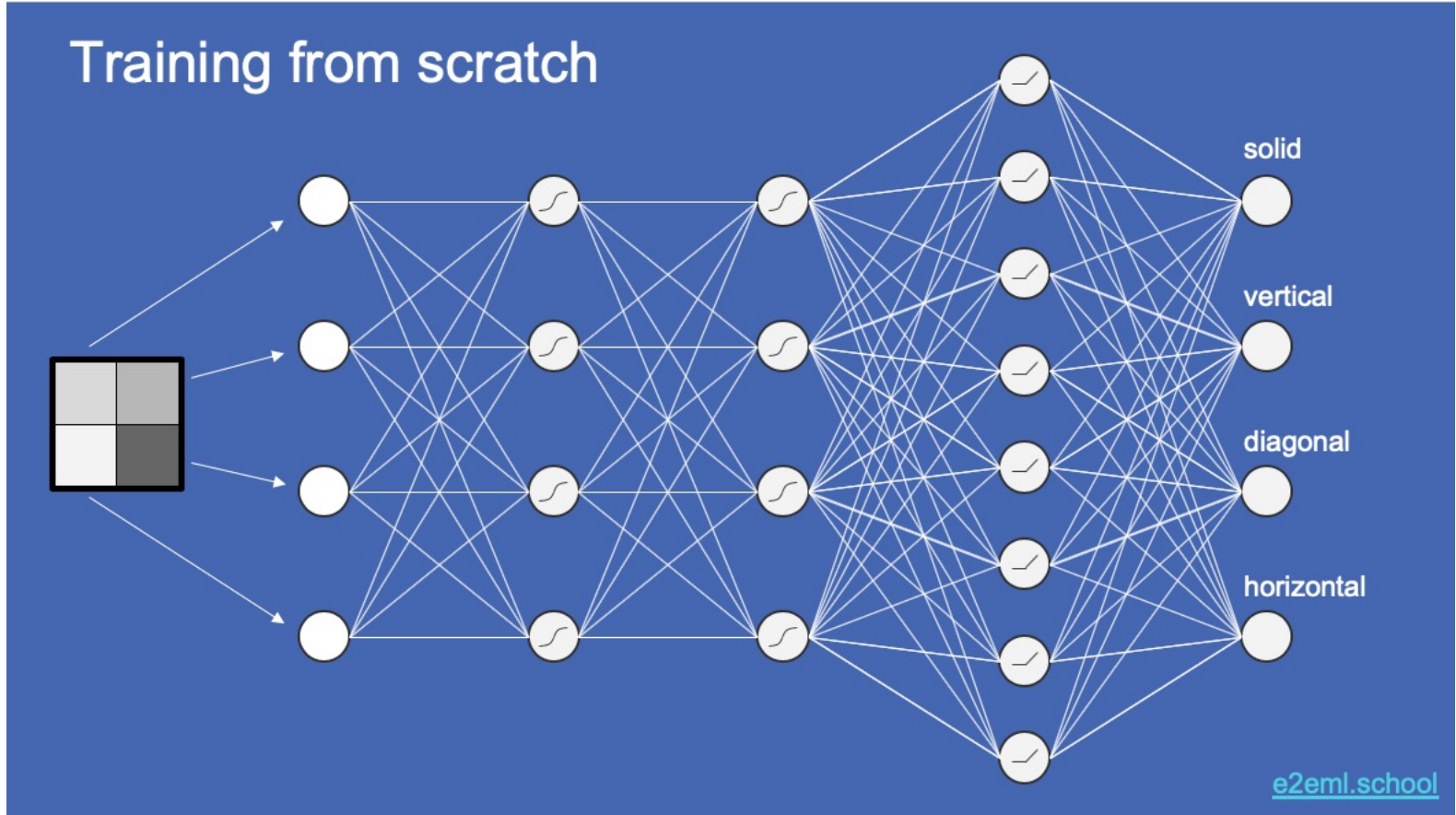
# Learning (of weights)

Learn all the weights: Gradient descent

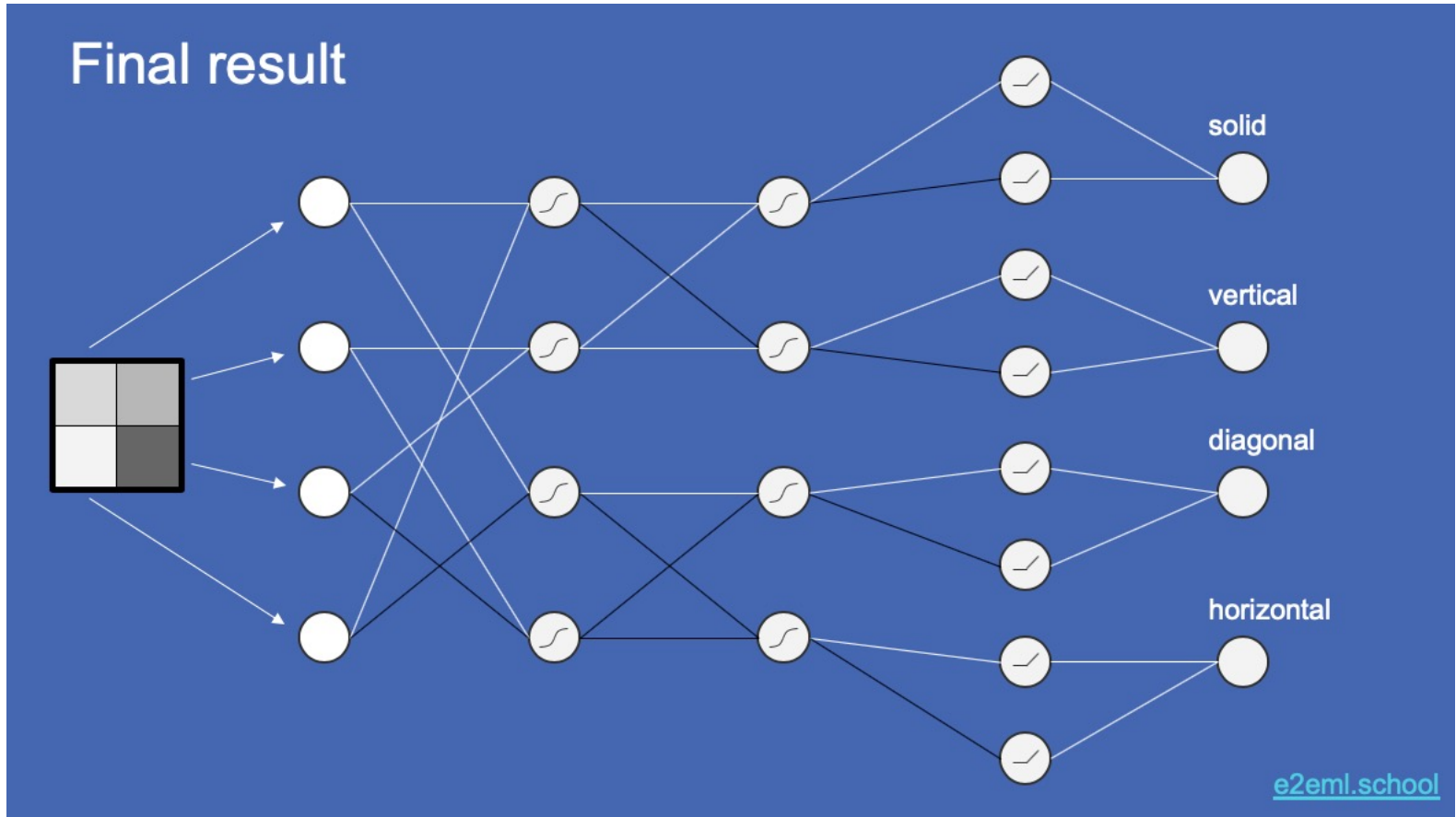




# Learning (of weights)



# Learning (of weights)





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Real-world issues, causes, lack of understanding

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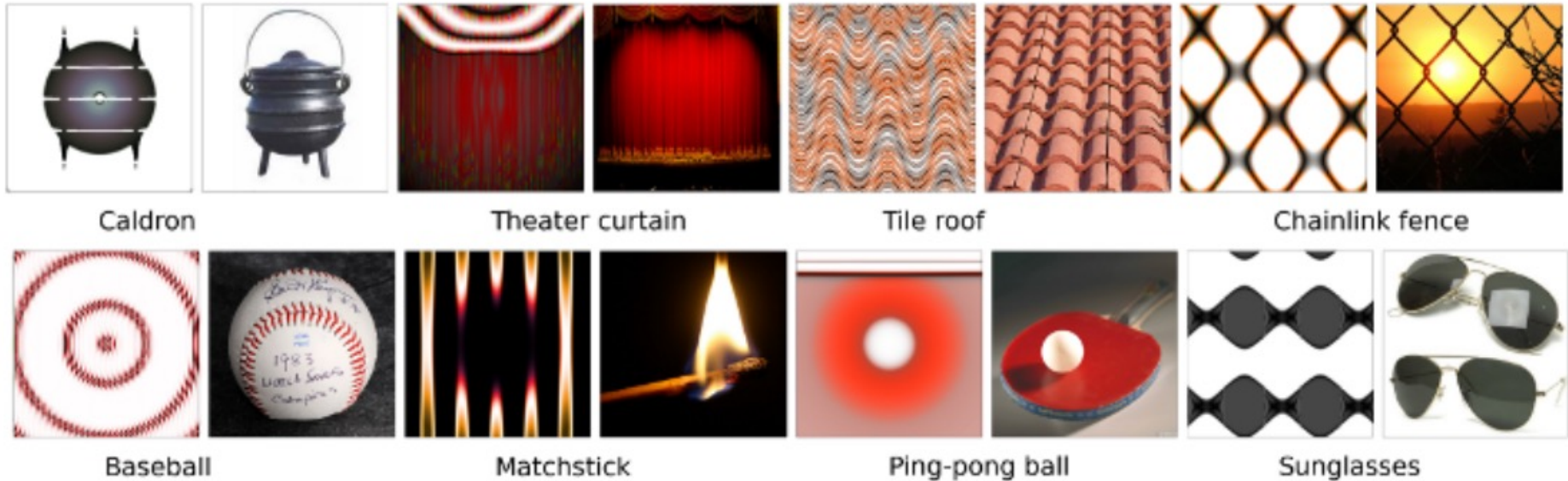
Understudied, key ingredients



**Robust Physical-World Attacks on Deep Learning Visual Classification**

Kevin Eykholt<sup>\*1</sup>, Ivan Evtimov<sup>\*2</sup>, Earlence Fernandes<sup>2</sup>, Bo Li<sup>3</sup>,  
Amir Rahmati<sup>4</sup>, Chaowei Xiao<sup>1</sup>, Atul Prakash<sup>1</sup>, Tadayoshi Kohno<sup>2</sup>, and Dawn Song<sup>3</sup>

**Real-world issues**



**Deep Neural Networks are Easily Fooled:  
High Confidence Predictions for Unrecognizable Images**

Anh Nguyen  
University of Wyoming

Jason Yosinski  
Cornell University

Jeff Clune  
University of Wyoming

- Weights transfer poorly to different datasets
- Human bias in defining the training dataset
- But more importantly, no *understanding*

## Florida Gators track and field

Track and field team



The Florida Gators track and field program represents the University of Florida in the sport of track and field. The program includes separate men's and women's teams, both of which compete in Division I of the National Collegiate Athletic Association and the Southeastern Conference. [Wikipedia](#)

# Can an alligator run the hundred-meter hurdles?

Lack of understanding



In their house, everything comes in pairs. There's his car and her car, his towels and her towels, and his library and hers.



English -> French, then French (corrected) -> English



At home, they have everything in double. There is his own car and his own car, his own towels and his own towels, his own library and his own library.

**Lack of understanding**

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Understudied, key ingredients

**M**y goal in this chapter is to make the case that the roots of human sociality lie in a special capacity for social interaction,<sup>1</sup> which itself holds the key to human evolution, the evolution of language, the nature of much of our daily concerns, the building blocks of social systems, and even the limitations of our political systems.

Much of the speculation about the origins and success of our species centers on the source of our big brains, the structure of our cognition, on the origins of language, the innate structures that support it, and on the striking cooperative potential in the species. These are genuine and important puzzles, but in the rush to understand them, we seem to have overlooked a core human ability and propensity, the study of which would throw a great deal of light on these other issues. It is right under our noses, much more accessible than the recesses of our brains or the fossils that track our evolutionary origins, and quite understudied. It is the structure of everyday human interaction.

Stephen C. Levinson, 2006

**An understudied core human ability and propensity**

- Not a fixed machine with a fixed output, but a set of principles for flexible communication
- Ontogenetically and phylogenetically prior to language
- Yet at the same time, constitutes the foundation for meaningful language use
- Biased toward cooperation

- Artificial intelligence  $\neq$  Human intelligence
- Human interactional abilities precede linguistic abilities in development and evolution

- Lab 2: Agent-based Modeling
- Bring a laptop with *MATLAB* installed and/or working access to *colab.research.google.com*

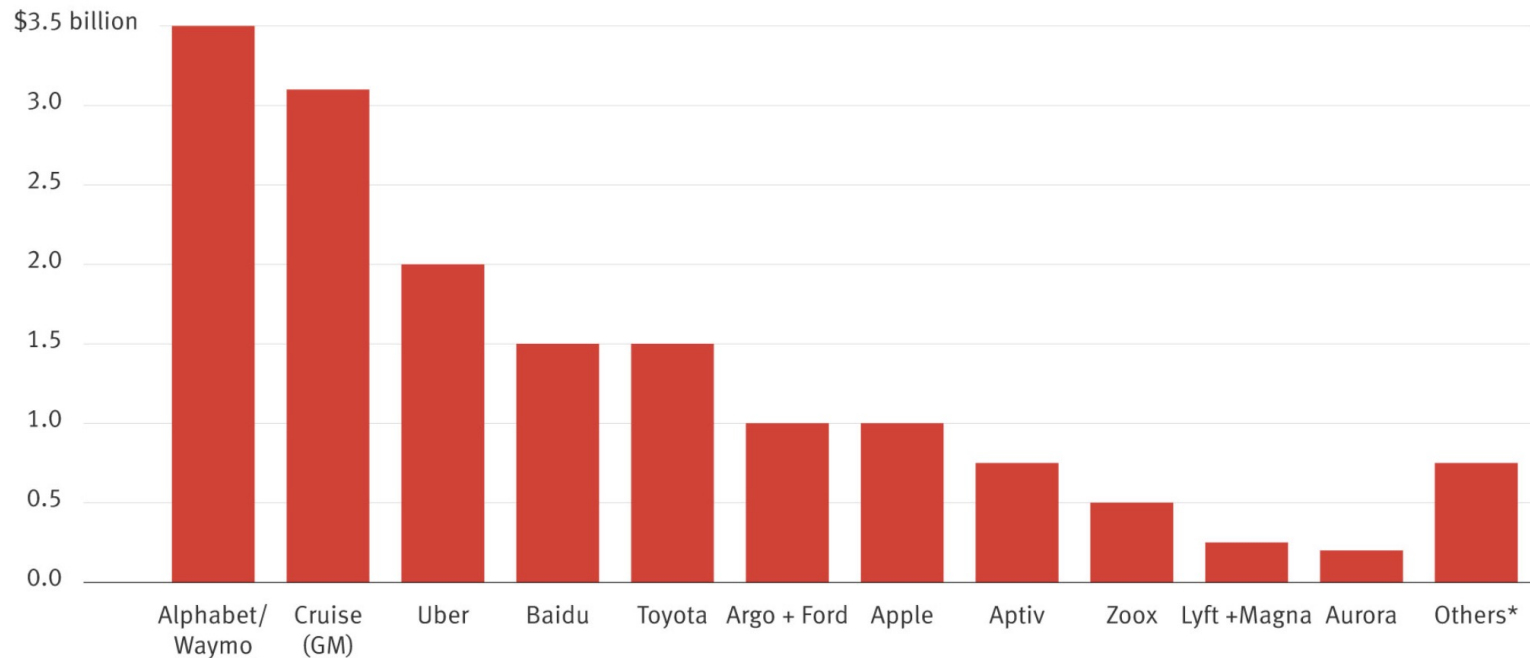
# Money Pit: Self-Driving Cars' \$16 Billion Cash Burn

By [Amir Efrati](#) Feb. 5, 2020 7:01 AM PST · Comments by [Gopi Gopalakrishnan](#), [Amir Efrati](#) and 8 others

[Subscribe now](#)

## Who Spent What on Fully Self-Driving Car R&D

Disclosed and estimated minimum total spend through 2019



**The curse of statistical abstraction**

Dear Reach autoparts,

A few days ago I have ordered the 'New Crankcase Breather Ventilation Hose For AUDI A4 A4 VW Passat 078 103 227'. I ordered it because the item number exactly matches the part

Message from reach\_autoparts:

Hello, my dear.

I am afraid I could not response you immediately because we are on the weekend holiday. ( # ^^ # )

Please do not worry. I will response to you as soon as back on work .

Thanks for your patience (∩\_\_∩)

It's really my honor to serve you.

Happy every day. ^0^