

MAKING WEIRD THINGS WITH DEEP MACHINE LEARNING

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MAKING WEIRD THINGS WITH DEEP MACHINE LEARNING

- 1. What is a neural network? (Math)**
- 2. Why use a neural network? (Art)**
- 3. How do I use a neural network? (Code)**

A FEW DISCLAIMERS

**1. I'M AN ARTIST, NOT A
COMPUTER SCIENTIST**

2. PROCEDURAL GENERATION IS NOT A SILVER BULLET



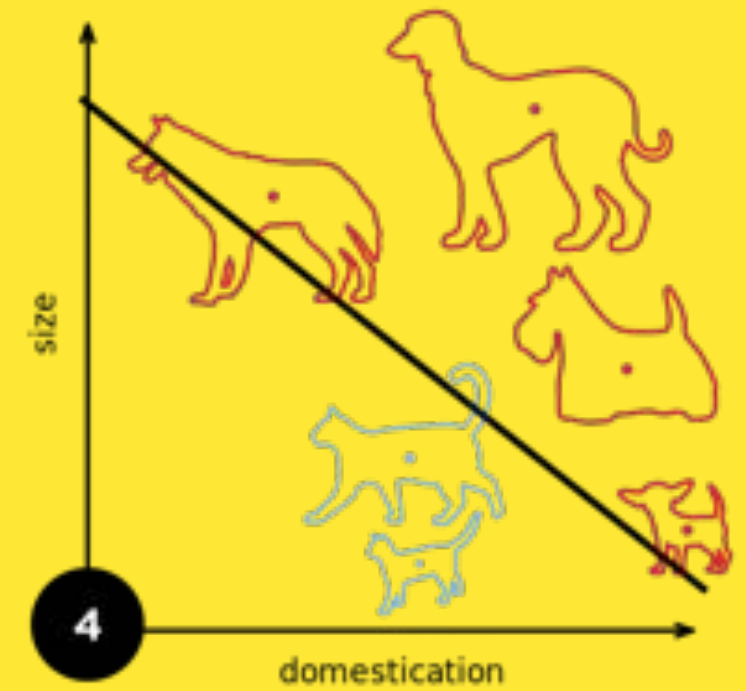
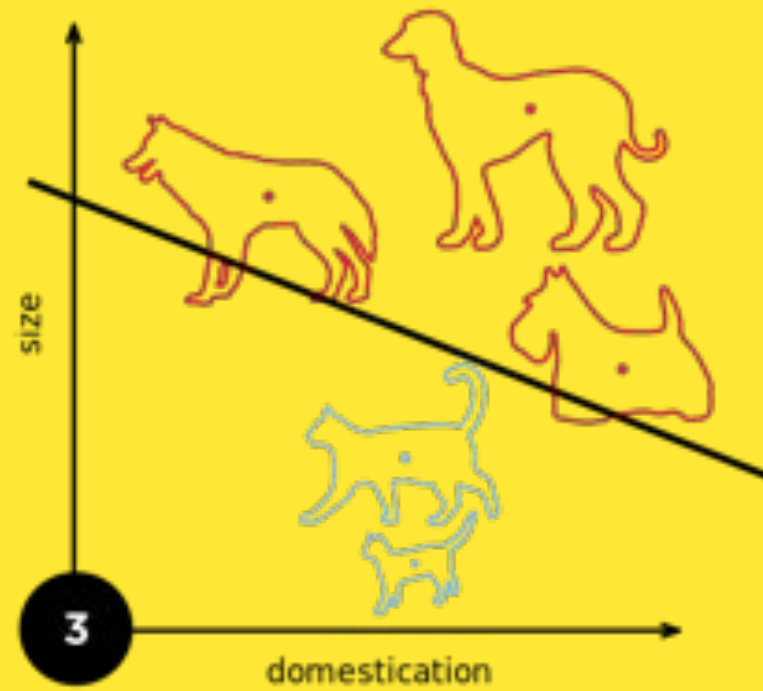
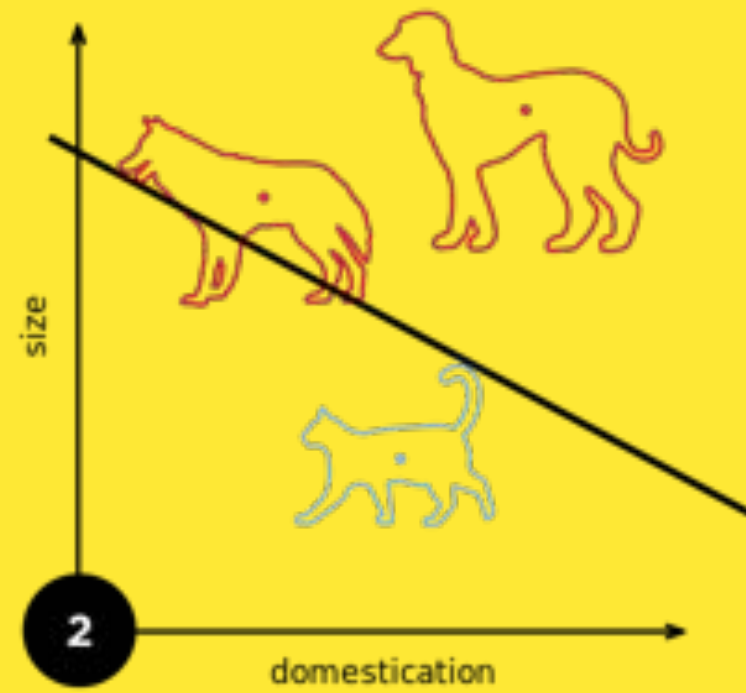
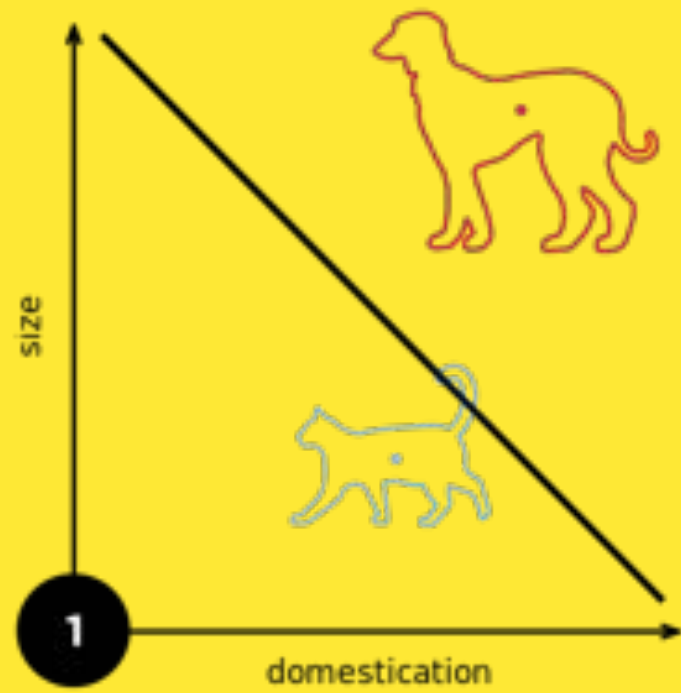


3. NEURAL NETWORKS ARE NOT A SILVER BULLET

<http://bit.ly/kate-compton-generators>

<http://bit.ly/harry-giles-poetics>

WHAT IS MACHINE LEARNING?



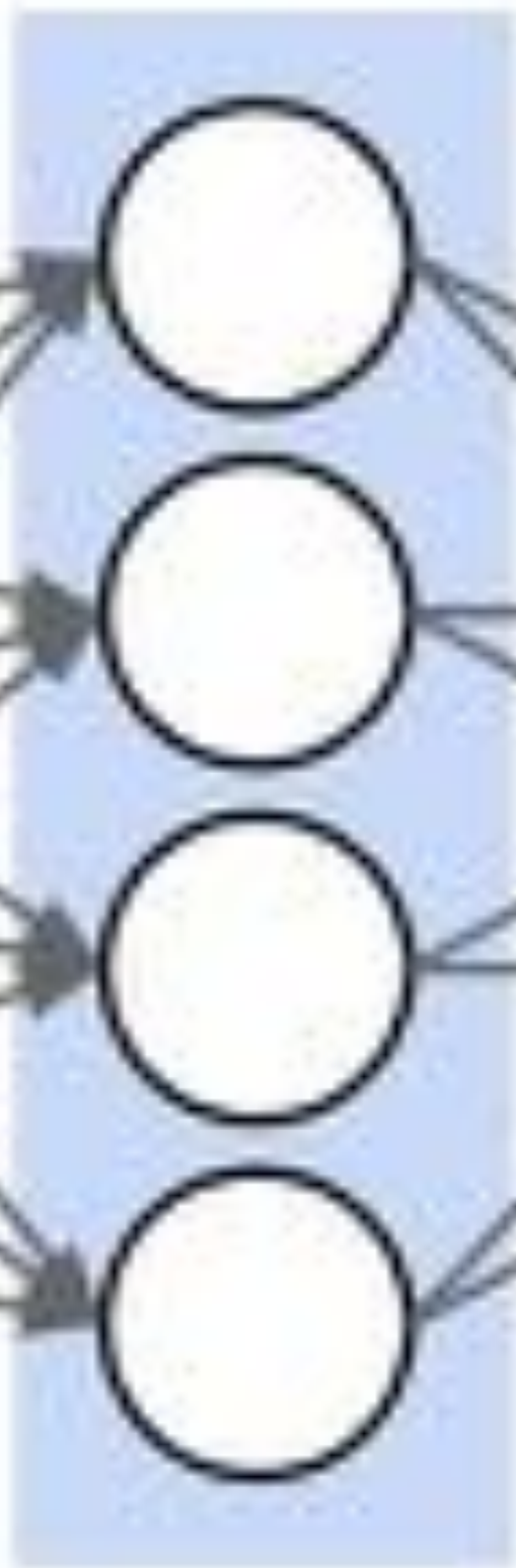
WHAT ARE NEURAL NETWORKS?



1. Inputs
2. Weights
3. Activation Function
4. Outputs



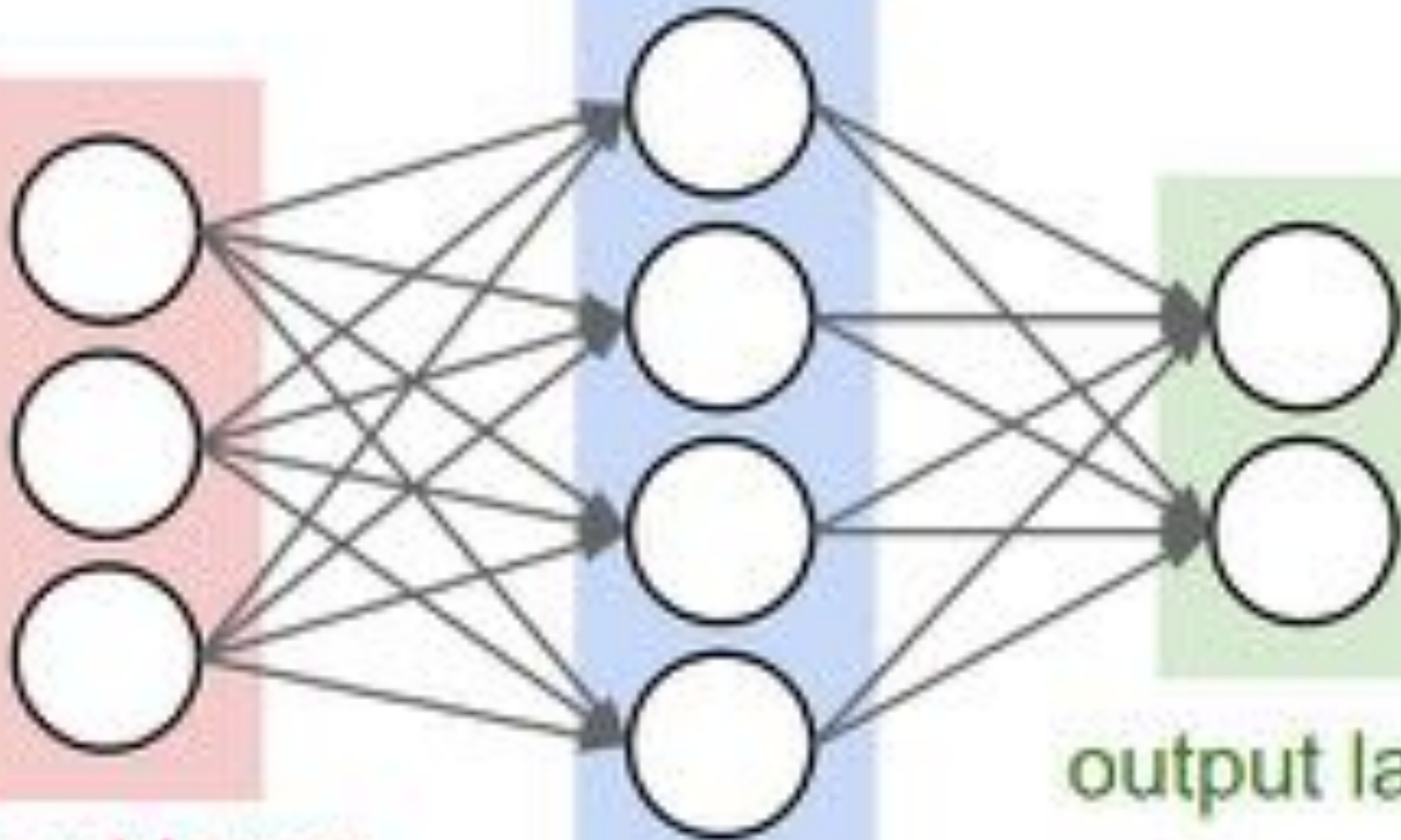
input layer



hidden layer

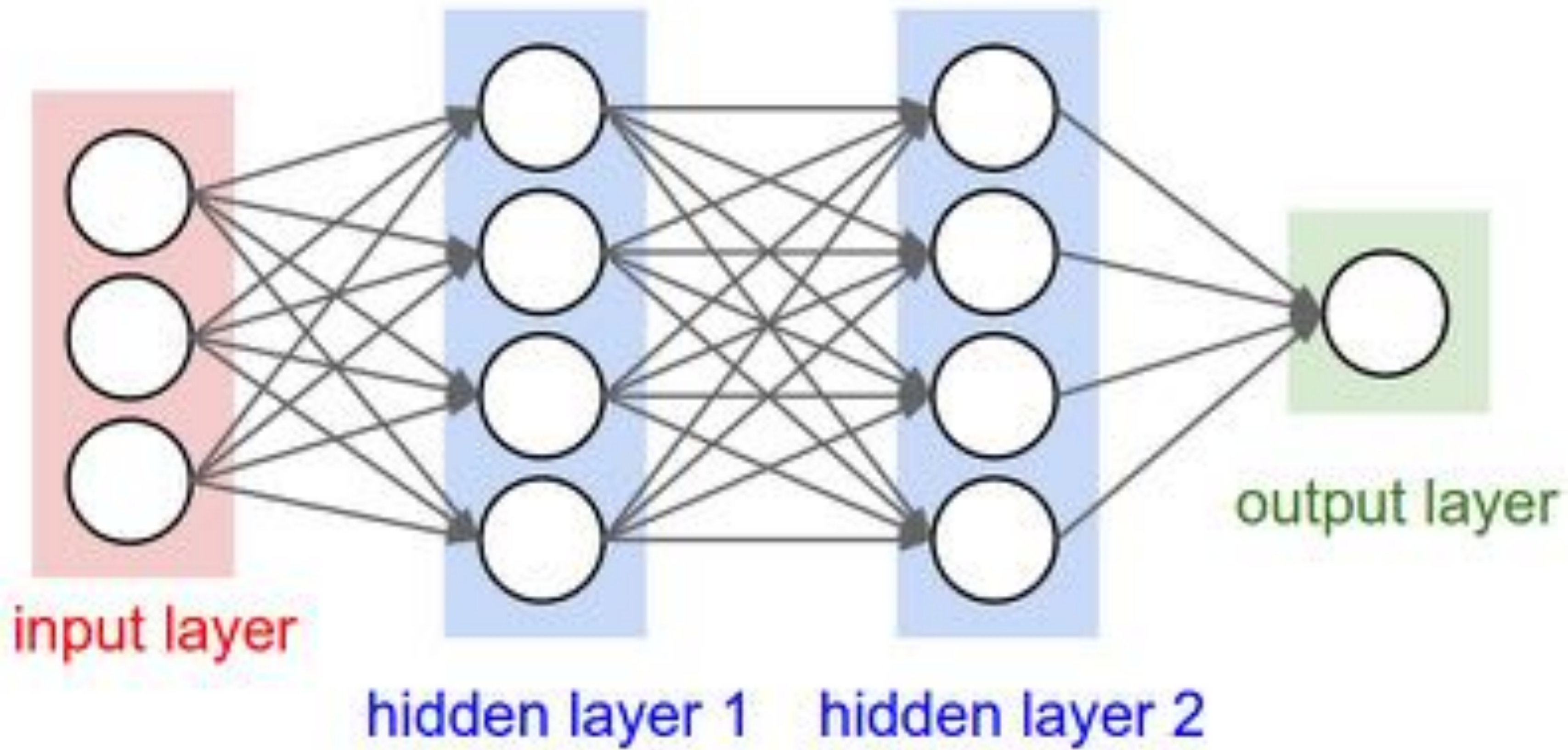


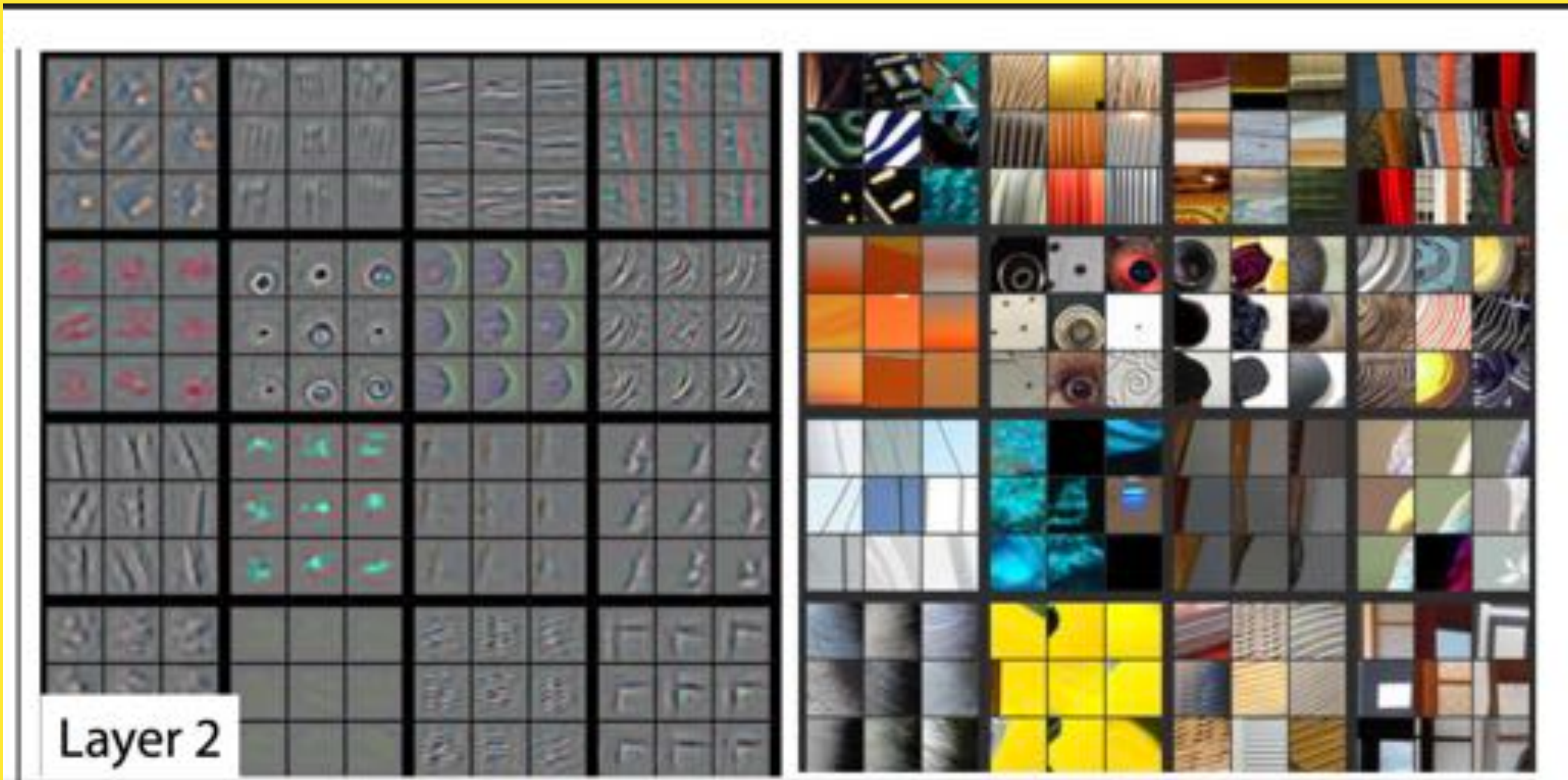
output layer



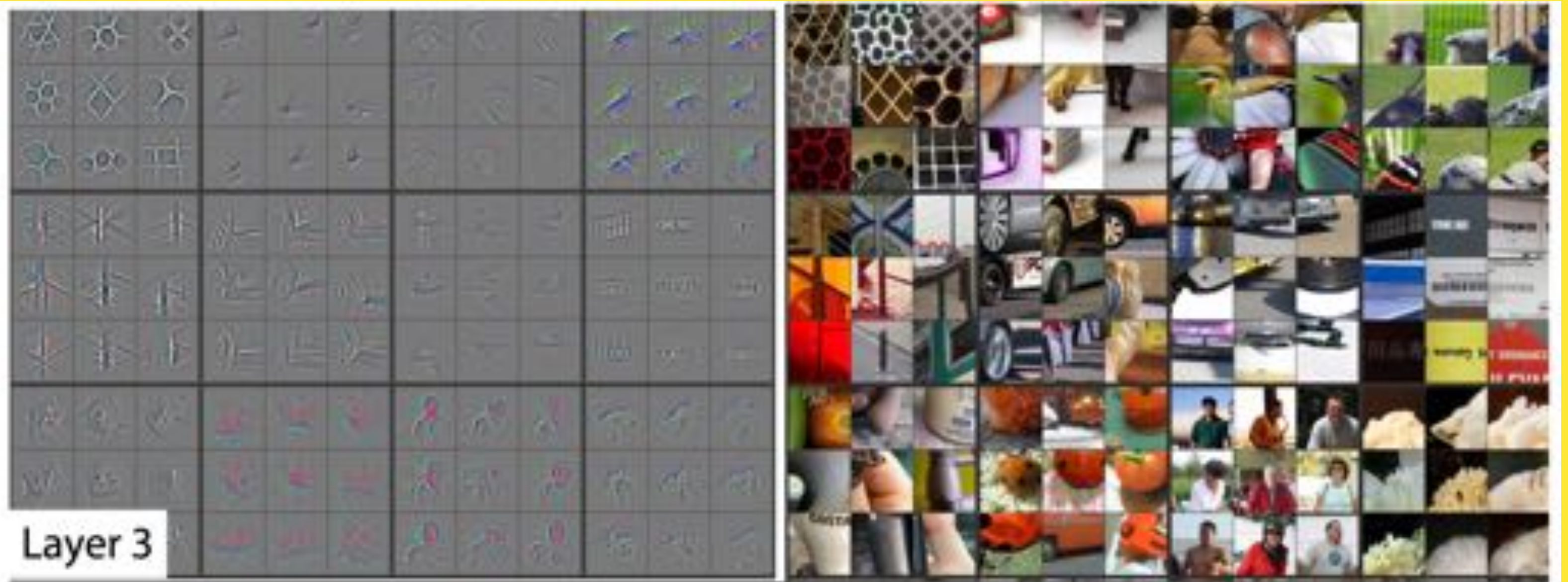


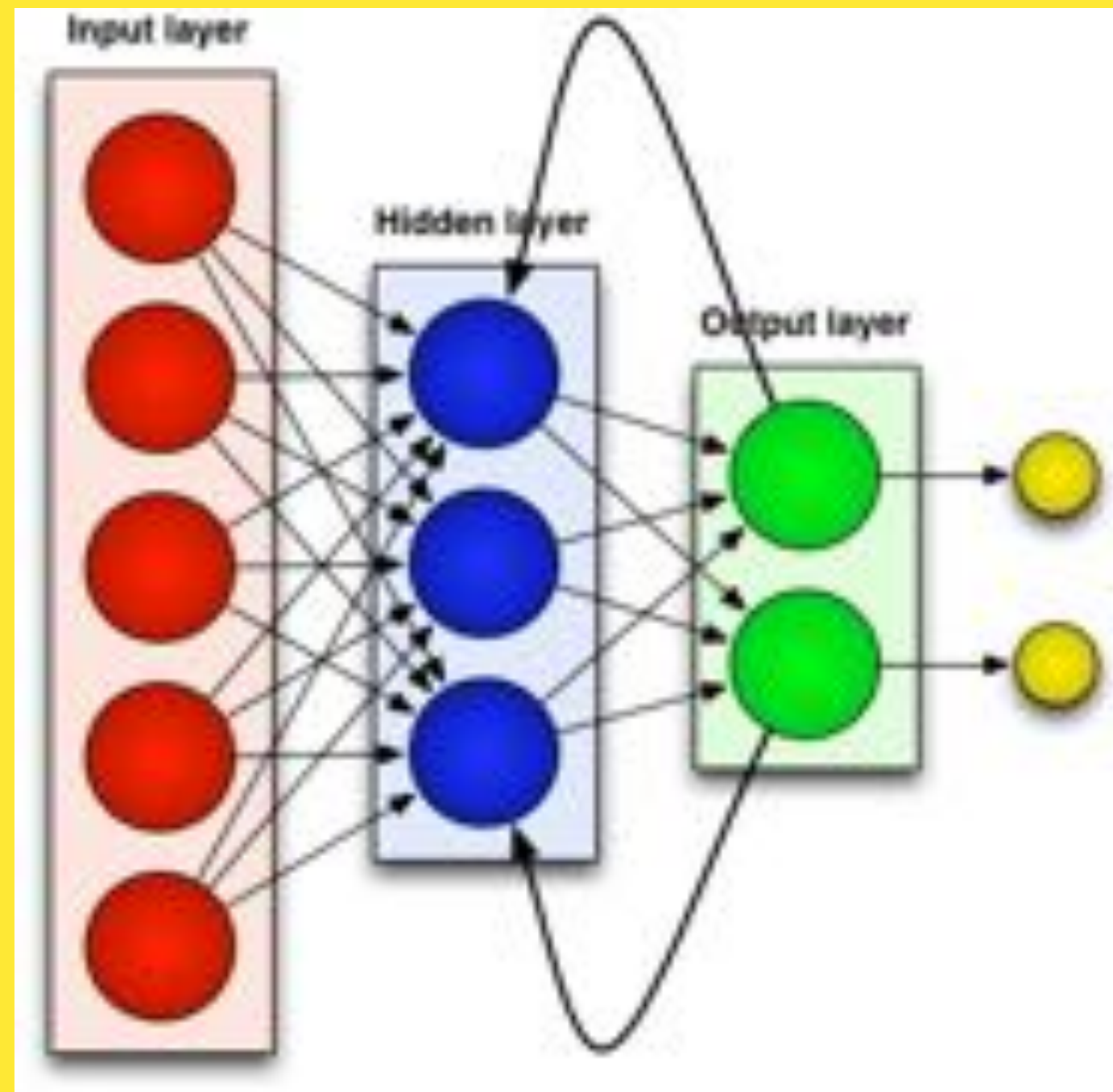
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<http://bit.ly/visualizing-cnns>





<http://bit.ly/unreasonable-effectiveness-rnns>

WHAT MAKES FOR GOOD PROCEDURAL GENERATION?

~~WHAT MAKES FOR GOOD PROCEDURAL~~
~~WHAT MAKES FOR GOOD PROCEDURAL~~
~~GENERATION?~~

 **Markov the Gathering**
@markovmtg ⚙️ Follow

702.105e. If a player is instructed to draw multiple cards, that player must be revealed to all players.

RETWEETS 11 LIKES 17



3:04 PM - 23 Sep 2015

 **Markov the Gathering**
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313.1. Conspiracy cards are used only in games begun with ten or more players.

RETWEETS 2 LIKES 6



3:10 PM - 23 Oct 2015

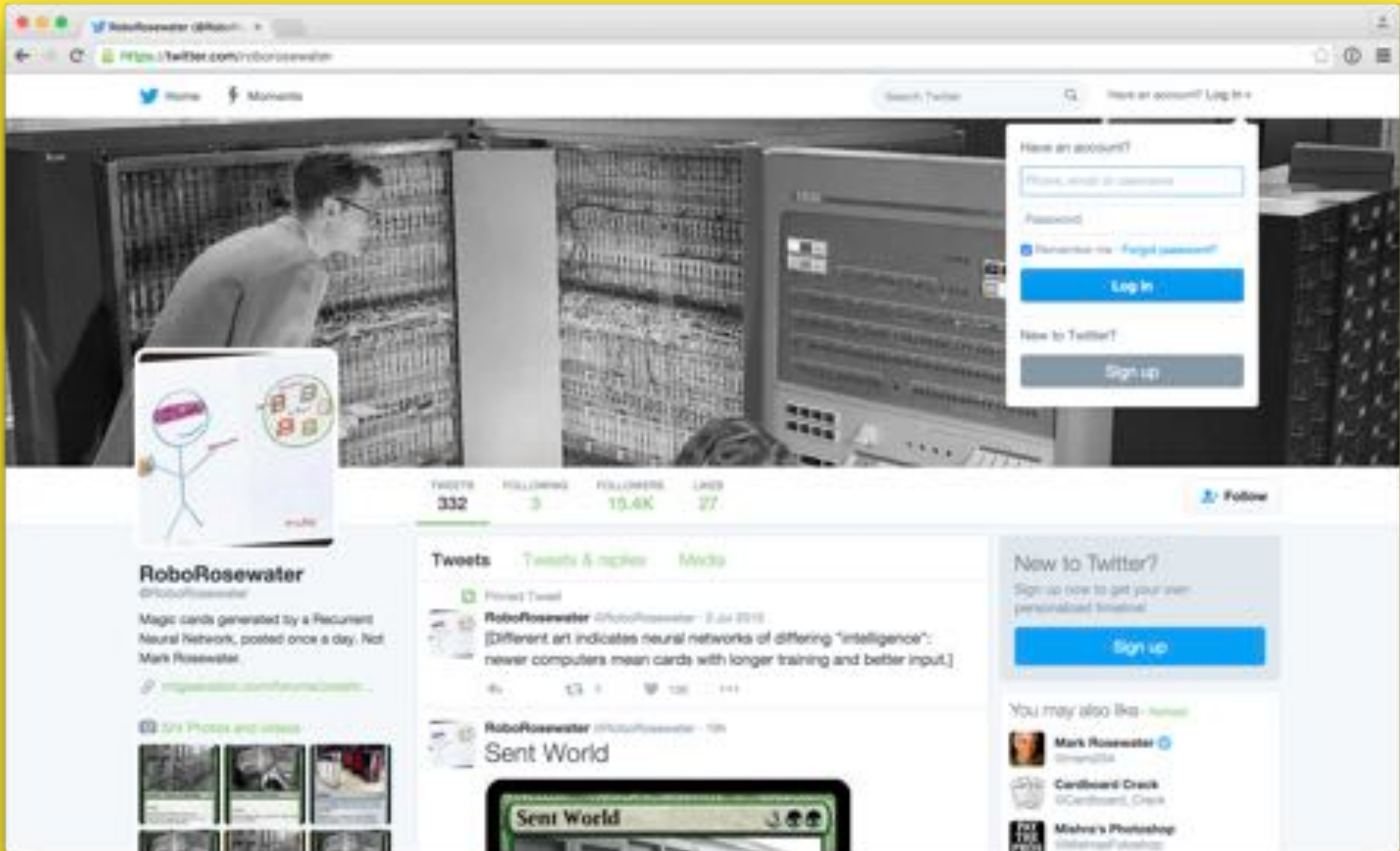
 **Markov the Gathering**
@markovmtg ⚙️ Follow

Team: A group of unopened Magic cards from a player's life total.

RETWEETS 5 LIKES 4



3:16 PM - 5 Oct 2015





DeepDrumpf
@DeepDrumpf



Follow

Right now, think of this: We owe China \$1.3 trillion. We owe Japan more than that. We have gun laws. I'll bring back our money.

RETWEETS
452

LIKES
554



12:01 PM - 5 Mar 2016



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@DeepDrumpf



Follow

[Delegate process unfair.] I'm being treated badly. Here's what's going to happen with these people. Anybody else support beatings?

RETWEETS
84

LIKES
155



10:33 PM - 7 Apr 2016

Pentametron Retweeted
 **alejandra velazquez** @radiantale · 17h
sucks knowing someone is ignoring you

Pentametron Retweeted
 **Troy Alana** @carsensfaddah · 17h
Damn mothers day around the corner too.



Two Headlines
@TwoHeadlines



 Follow

This town has resisted Pelicans for 18 months.
But food is running low.

RETWEETS

70

LIKES

120



9:08 AM - 22 Jul 2015

Dropout 0.25, Loss 1.1465, 1:16:1, Railroad



A train traveling over a bridge over a river to the end of the street and the sea is a strange street with a cold sun on the street where the sun stands and the sun is still and the sun is still and the sun is gone. The sun is all around me. I am the same as the sun on the street with a strange contract.

A train traveling over a bridge over a river to the graveyard and the barn was a strange street of straw halls and the sun was always sinking in the sun.

I was the one who was still in the street when he was standing in the sun and the sun was still alive.

He was a big smile and I was a child who was a stranger.

<http://bit.ly/ross-goodwin-medium>



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HOW CAN YOU USE THESE THINGS?



ONLINE APIS

Project Oxford: <https://www.projectoxford.ai>

IBM Bluemix: <http://bit.ly/watson-developer-cloud>

CONSTRUCTION KITS

mtg-rnn: <https://github.com/billzorn/mtg-rnn>

neural-style: <https://github.com/jcjohnson/neural-style>

neural-doodle: <https://github.com/alexjc/neural-doodle>

torch-rnn: <https://github.com/jcjohnson/torch-rnn>

EC2 IS YOUR FRIEND



<https://education.github.com/pack>

GO FORTH AND MAKE THINGS!

THANK YOU!

Mike Lazer-Walker

<http://lazerwalker.com>

twitter: [@lazerwalker](https://twitter.com/lazerwalker)

slides: <http://bit.ly/indiecade-east-2016-ml>