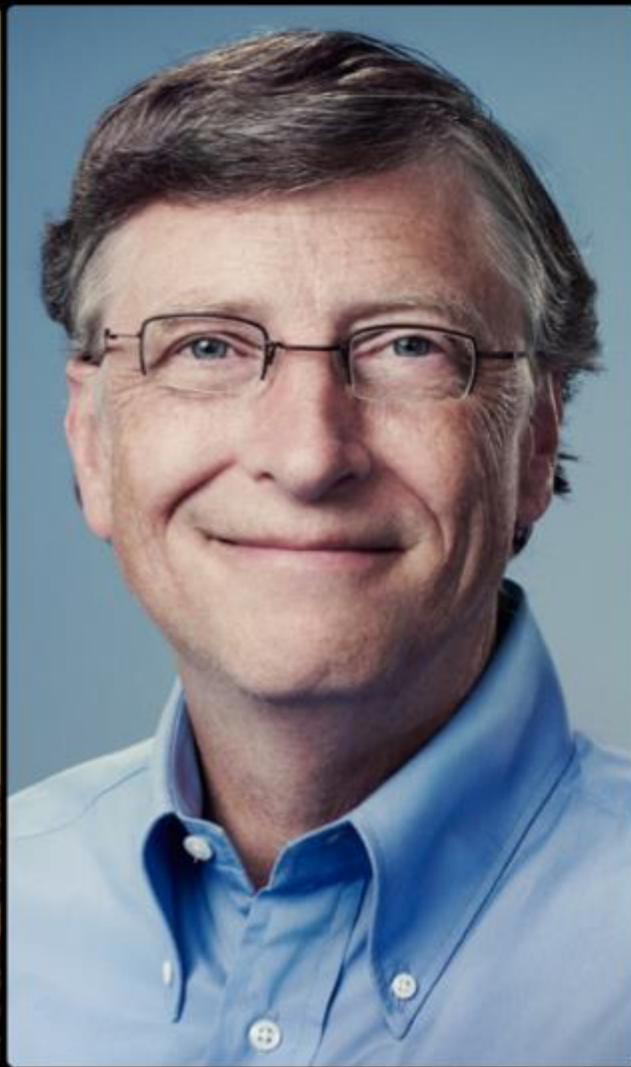


# 딥러닝 기반 인공지능 기술 현황과 전망

백승욱

*Co-founder and CEO, Cldi Inc.*







**Elon Musk** 

@elonmusk



Following

Worth reading Superintelligence by Bostrom. We need to be super careful with AI. Potentially more dangerous than nukes.



RETWEETS

2,680

FAVORITES

2,933



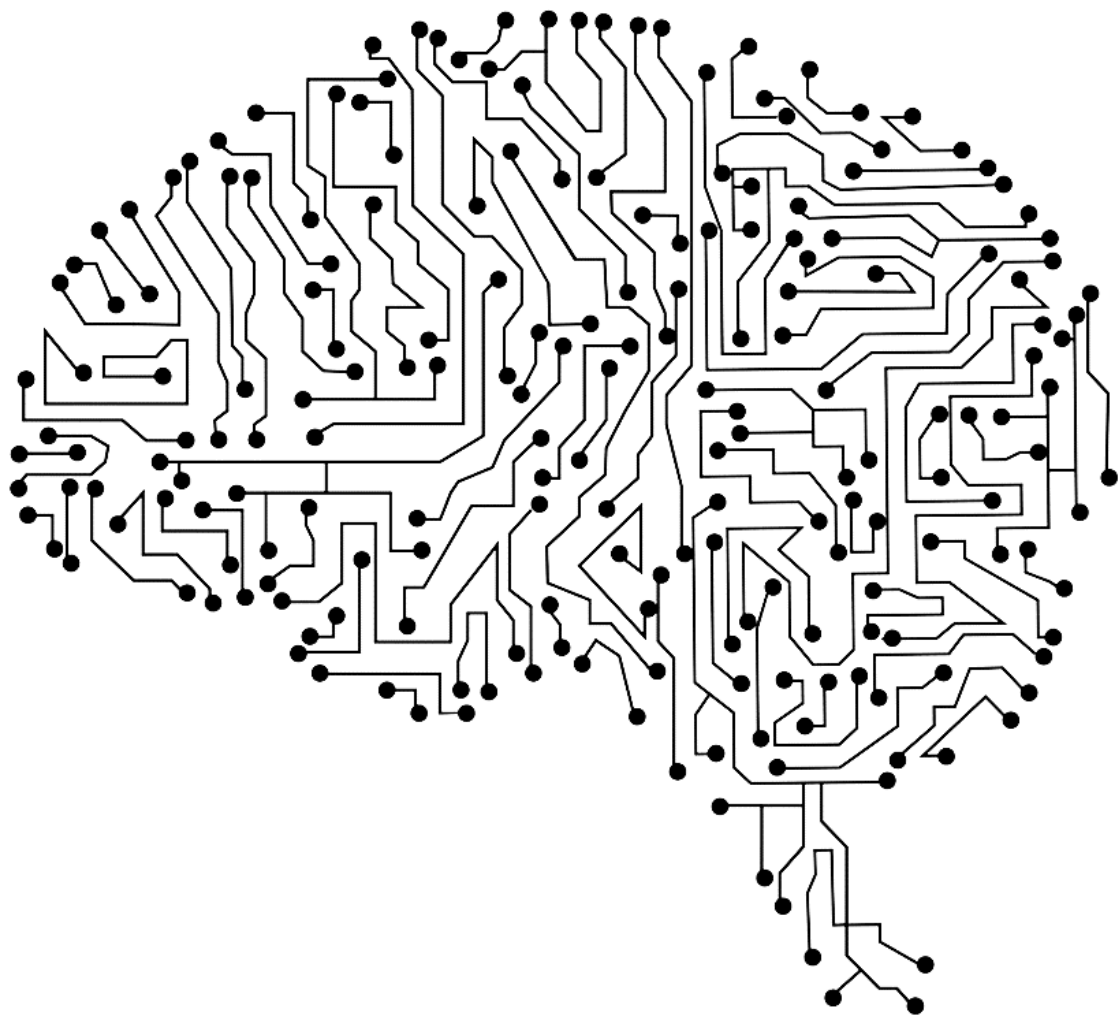
11:33 AM - 3 Aug 2014

Artificial intelligence (AI)

# Elon Musk says he invested in DeepMind over 'Terminator' fears

The Tesla Motors CEO, who was an early investor in AI firm, says he wants keep an eye on dangerous AI

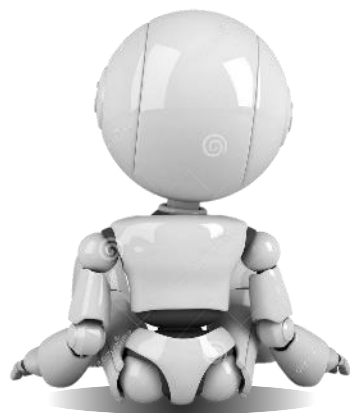




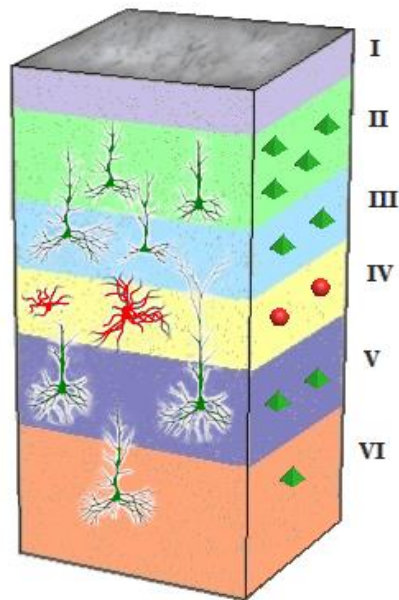
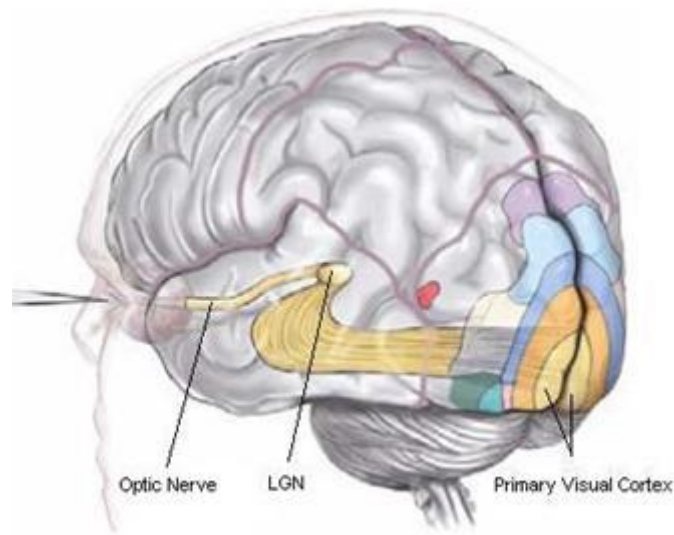




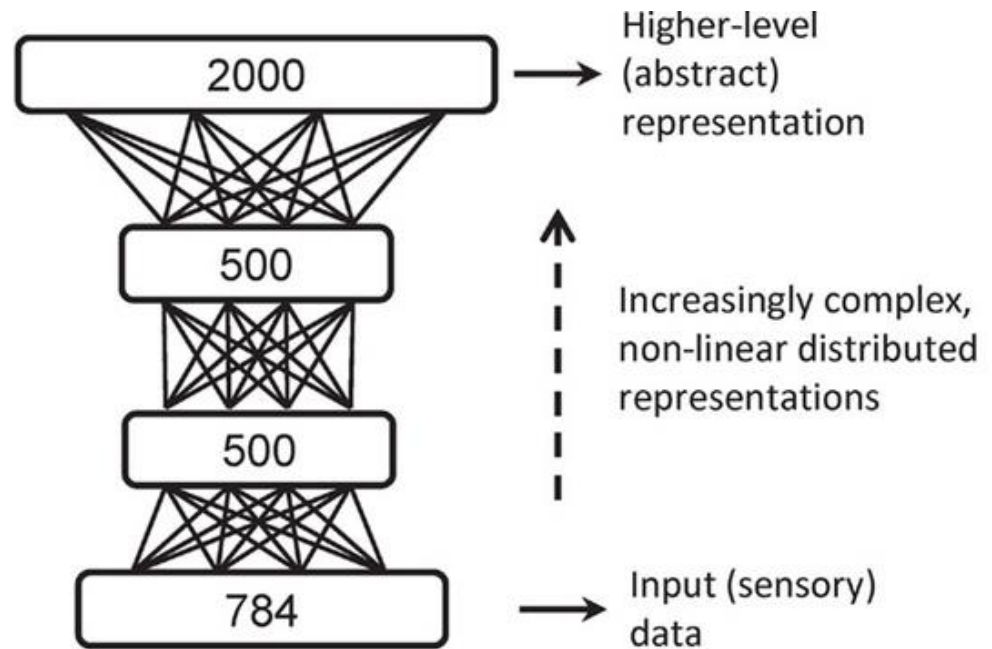








◆ Pyramidal cells  
● Interneurons



Layer 3



Layer 2



Layer 1





# ImageNet Large Scale Visual Recognition Challenges







GT: horse cart

1: horse cart

2: minibus

3: oxcart

4: stretcher

5: half track



GT: birdhouse

1: birdhouse

2: sliding door

3: window screen

4: mailbox

5: pot



GT: forklift

1: forklift

2: garbage truck

3: tow truck

4: trailer truck

5: go-kart



GT: coucal

1: coucal

2: indigo bunting

3: lorikeet

4: walking stick

5: custard apple



GT: komondor

1: komondor

2: patio

3: llama

4: mobile home

5: Old English sheepdog



GT: yellow lady's slipper

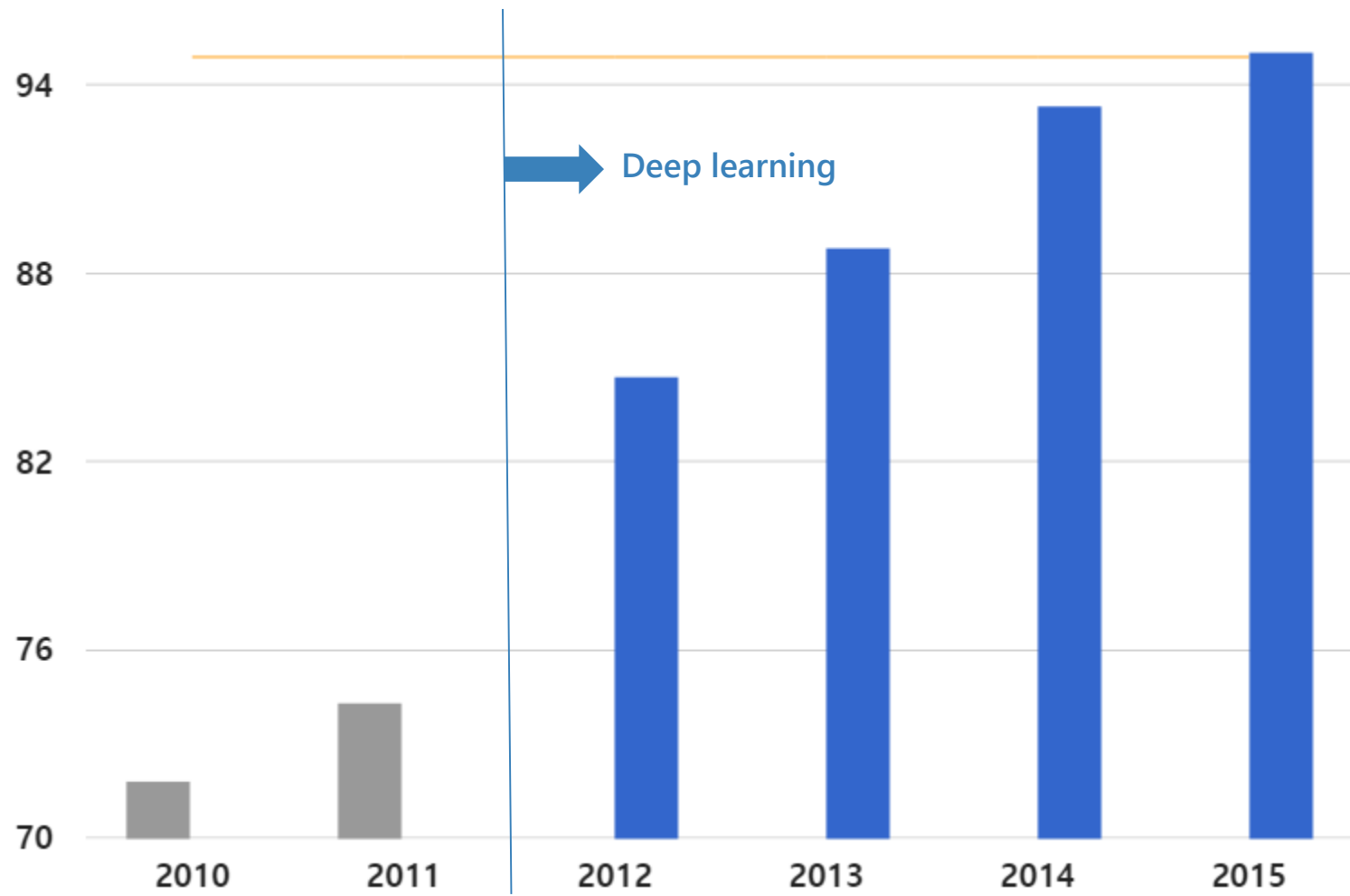
1: yellow lady's slipper

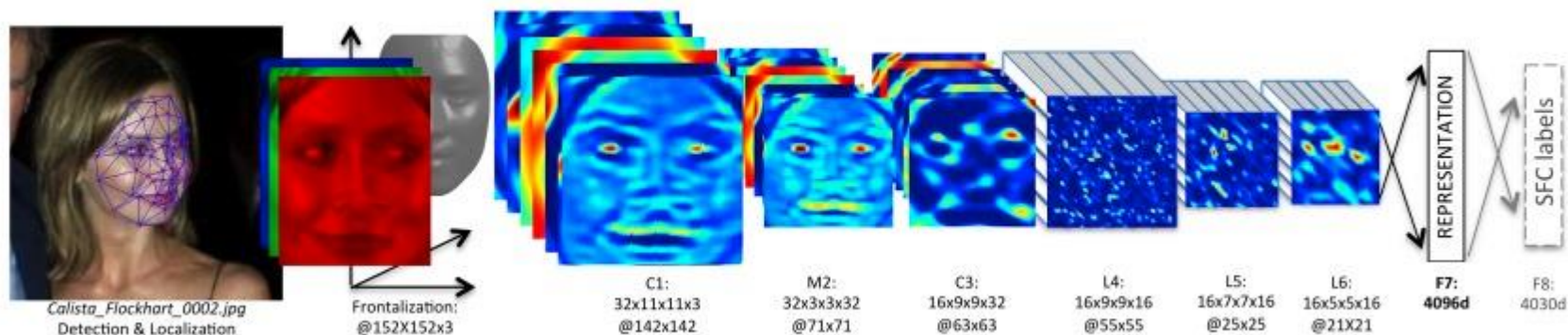
2: slug

3: hen-of-the-woods

4: stinkhorn

5: coral fungus





TECH 3/18/2014 @ 5:58오후 | 25,489 views

# Facebook's DeepFace Software Can Match Faces With 97.25% Accuracy

+ Comment Now + Follow Comments

Have you noticed that Facebook is getting better at making suggestions for people to tag in the photos that you have uploaded? Facebook will only get better at identifying faces thanks to advances in artificial intelligence and “deep learning.” Facebook researchers are currently developing algorithms called “DeepFace” to detect whether two faces in unfamiliar photos are of the same person with 97.25% accuracy, regardless of lighting conditions or angles. As a comparison, humans generally have an average of 97.53% accuracy. This means that Facebook’s facial-processing software has nearly the same accuracy as humans.

Source: Facebook



# Google: Our new system for recognizing faces is the best one ever

by Derrick Harris

MARCH 17, 2015, 5:05 PM EDT



**New advances in facial recognition are a step forward for an artificial intelligence technique called deep learning.**

“I never forget a face,” some people like to boast. It’s a claim that looks quainter by the day as artificial intelligence research continues to advance. Some computers, it turns out, never forget 260 million faces.

Last week, a trio of Google ( [GOOG ▲ 1.57%](#) ) researchers **published a paper** on a new artificial intelligence system dubbed FaceNet that it claims represents the most-accurate approach yet to recognizing human faces. FaceNet achieved nearly 100-percent accuracy on a popular facial-



1.22



1.33



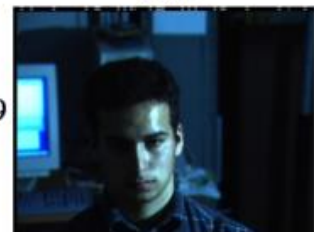
1.04



1.33



1.26



0.99

"A group of young people playing a game of Frisbee."



"Two hockey players are fighting over the puck."



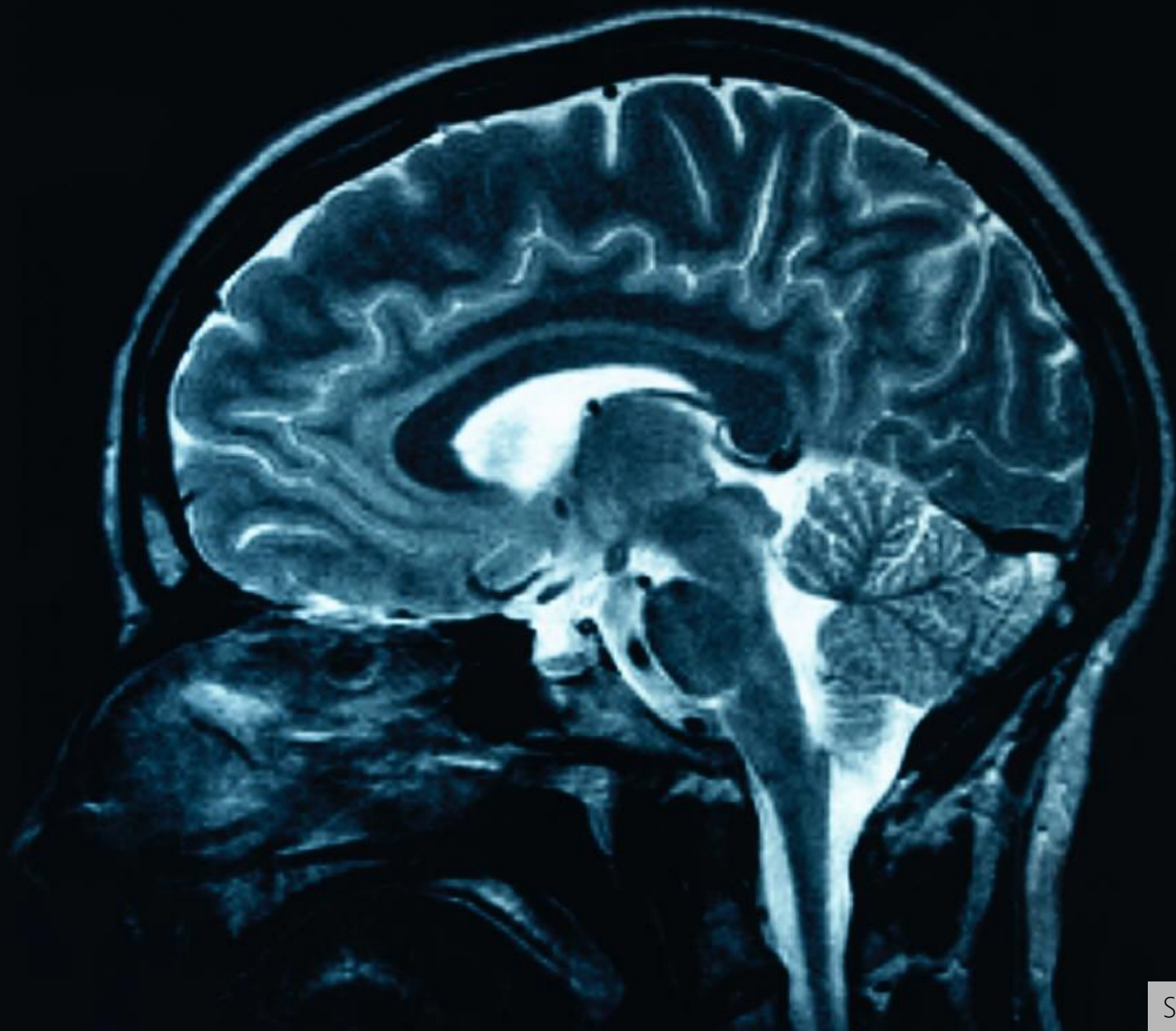
"A man flying through the air while riding a snowboard."



"A person riding a motorcycle on a dirt road."

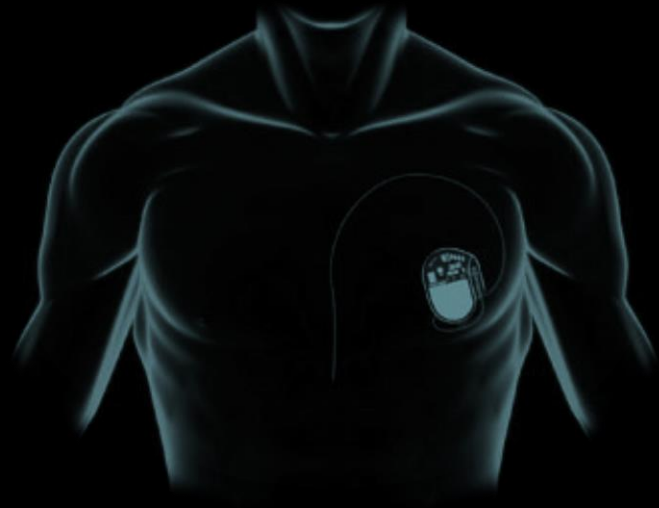


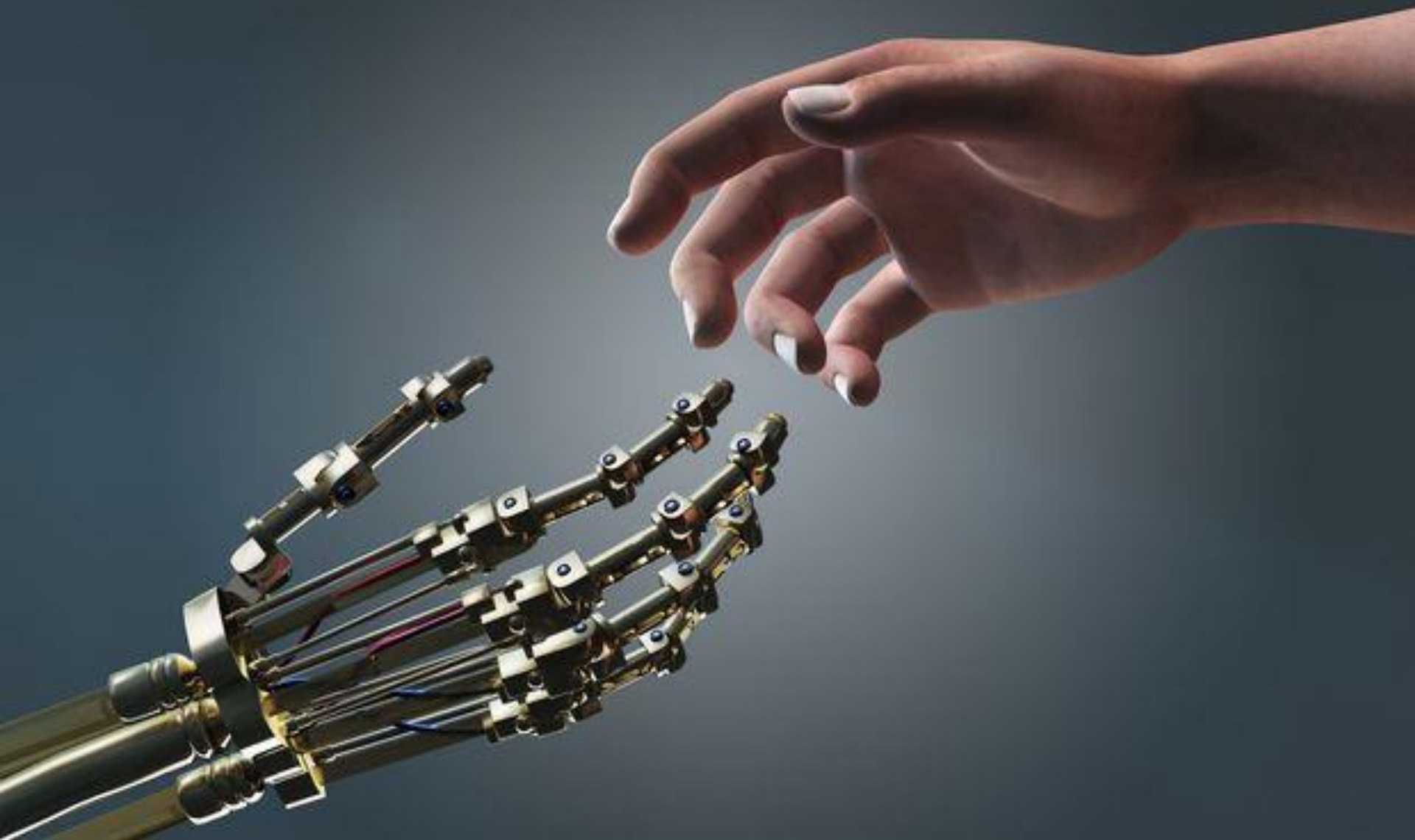






FDA





$$2^{10,000}$$



“

Our machines should be nothing more than tools  
for extending the powers of the human beings  
who use them.

”

*Thomas Watson Jr.*





Completed • \$40,000 • 236 teams

## Merck Molecular Activity Challenge

Thu 16 Aug 2012 – Tue 16 Oct 2012 (2 years ago)

### Dashboard

Home



Data



### Information



Description

Evaluation

Rules

Prizes

Submission Instructions

Visualization Prospect

Winners

### Forum



### Leaderboard



Public

Private

### Visualization



### Leaderboard

Help develop **safe and effective medicines** by predicting molecular activity.

Help enable the development of safe, effective medicines.

When [developing new medicines](#) it is important to identify molecules that are highly active toward their intended targets but not toward other targets that might cause side effects. The objective of this competition is to identify the best statistical techniques for predicting biological activities of different molecules, both on- and off-target, given numerical descriptors generated from their chemical structures.

The challenge is based on 15 molecular activity data sets, each for a biologically relevant target. Each row corresponds to a molecule and contains descriptors derived from that molecule's chemical structure.

In addition to the prediction competition, Merck is also hosting a [visualization challenge](#) with a \$2,000 prize for the most insightful and elegant graphical representations of the data.











# PREDICTIVE POLICING®

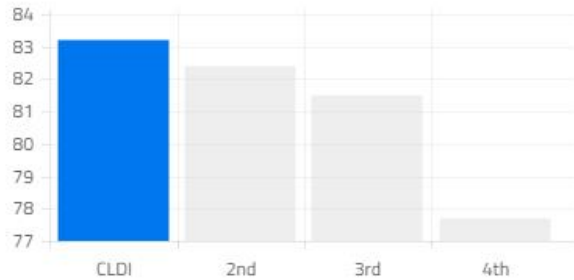
The Predictive Policing Company

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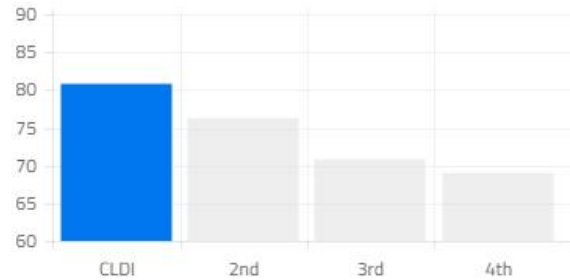
PredPol's cloud-based software enables law enforcement agencies to better prevent crime in their communities by generating predictions on the places and times that future crimes are most likely to occur.

## State-of-the-art classification accuracy

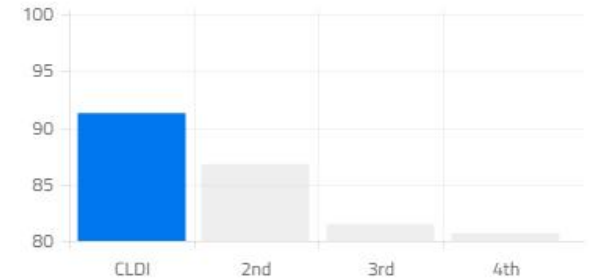
PASCAL VOC2007



MIT Indoor67



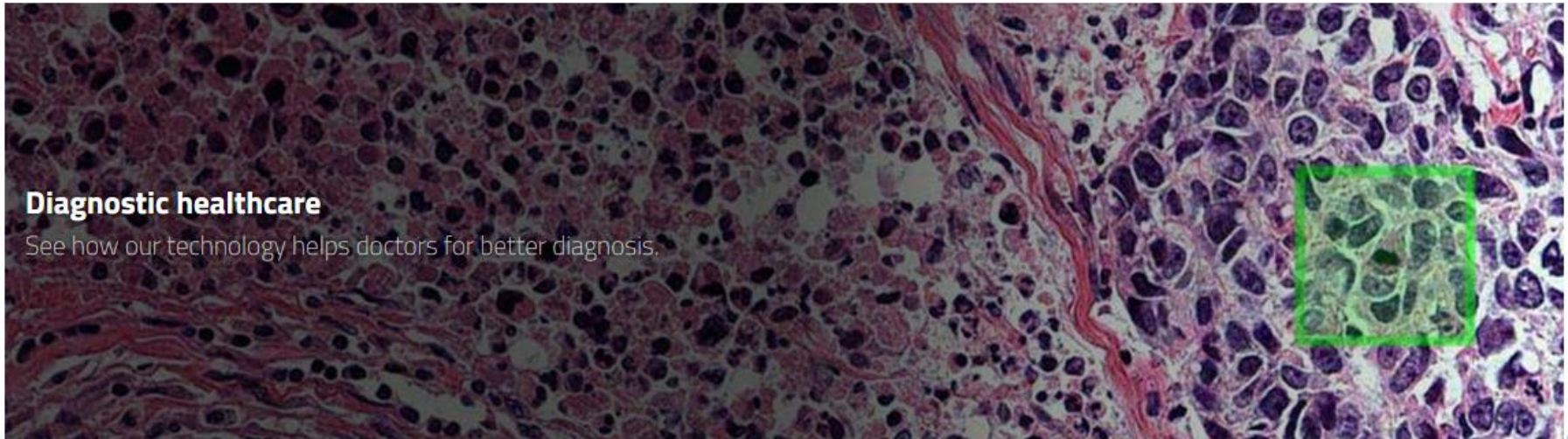
Oxford 102 Flower



## Applications

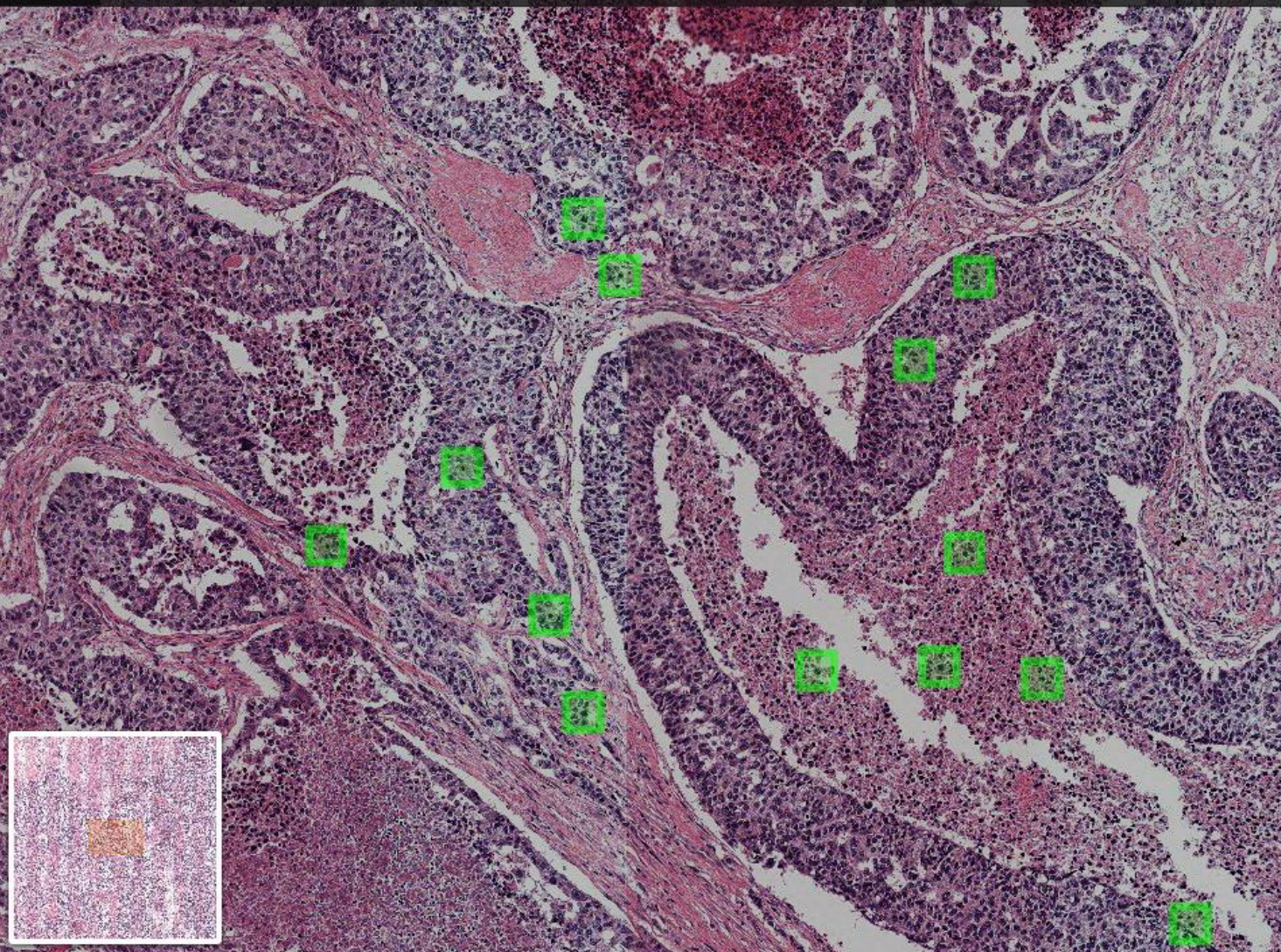
### Diagnostic healthcare

See how our technology helps doctors for better diagnosis.

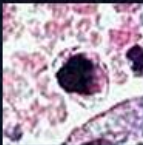




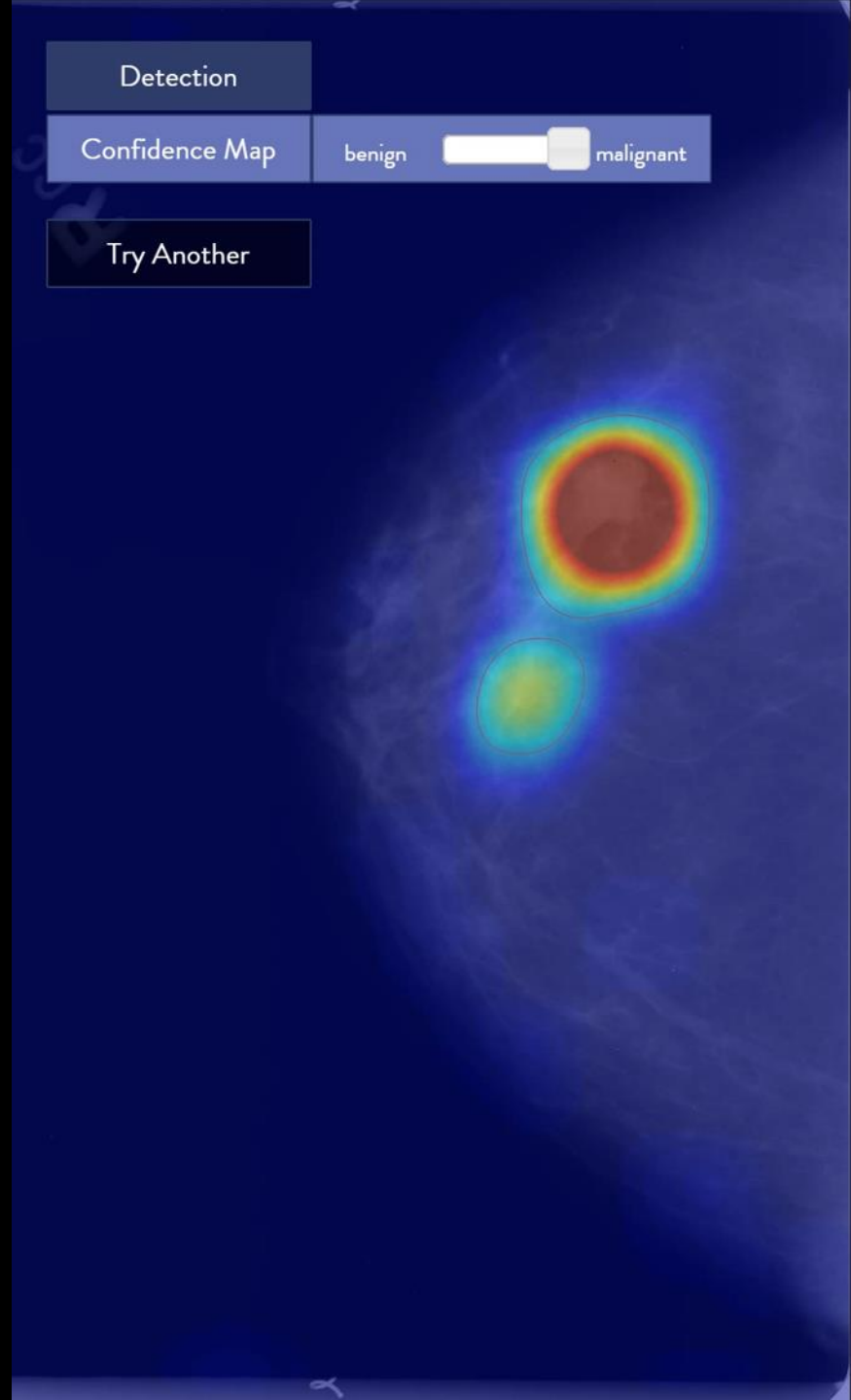
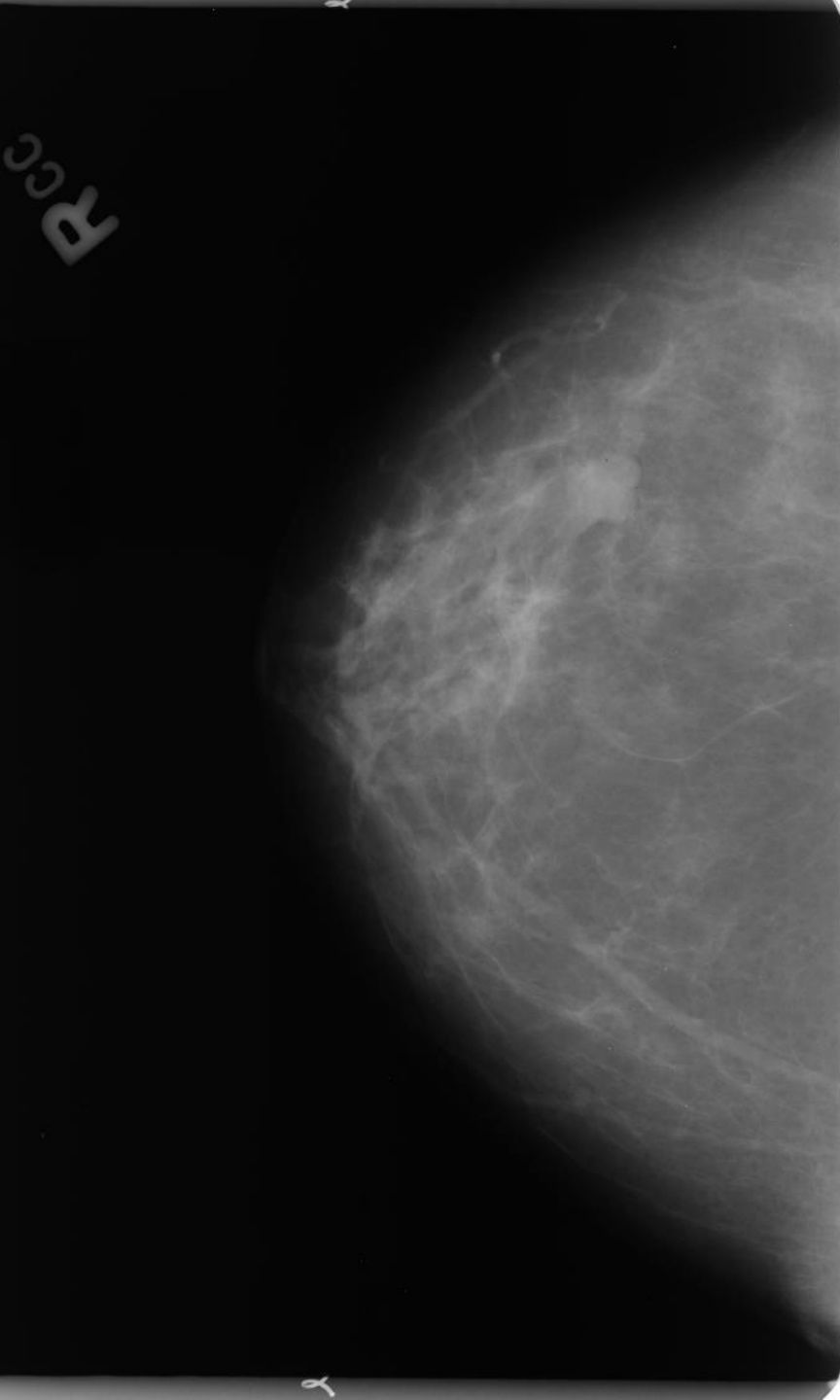
# CLDI Scope: Mitosis Detection in Breast Cancer Histological Images



## Mitosis candidates

#47		Score: 0.996327 X: 33822 Y: 13764
#48		Score: 0.996317 X: 21407 Y: 28398
#49		Score: 0.996312 X: 29536 Y: 34694
#50		Score: 0.996296 X: 5398 Y: 27862
#51		Score: 0.996271 X: 9577 Y: 32433
#52		Score:









**cldi**

**감사합니다.**

백승욱 (apaek@cldi.io)