

# AI(2) Startup Incubator Progress, challenges, and outlook

**Vu Ha, Technical Director @ Startup Incubator  
The Allen Institute for Artificial Intelligence (AI2)**

- AI2: introduction
  - Speaker's background
- Startup incubator inside a research institute, why?
- AI2 Incubator: essential information
- Recent progress
- Outlook

# AI2: introduction

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# AI2: The beginning: January 2014

*Mission: to contribute to humanity through high-impact AI research and engineering.*



**Paul Allen**  
**Founder**

**Oren Etzioni**  
**CEO**

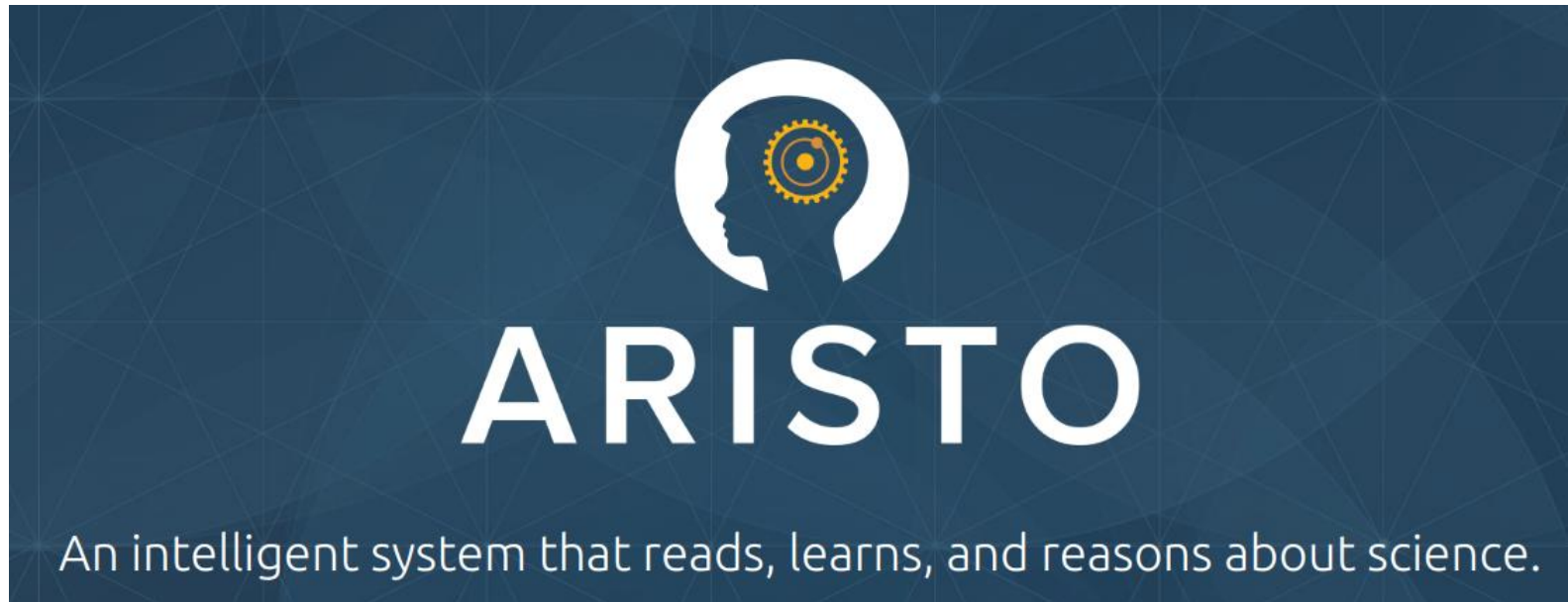


- Microsoft co-founder
- Business magnate
- Philanthropist
- Founded AI for brain science, cell science
- \$20B net worth

- Renown AI professor
- Pioneer of meta-search, machine reading, and open information extraction.
- Founded 6 companies

# AI2's location: Seattle, the "emerald city"

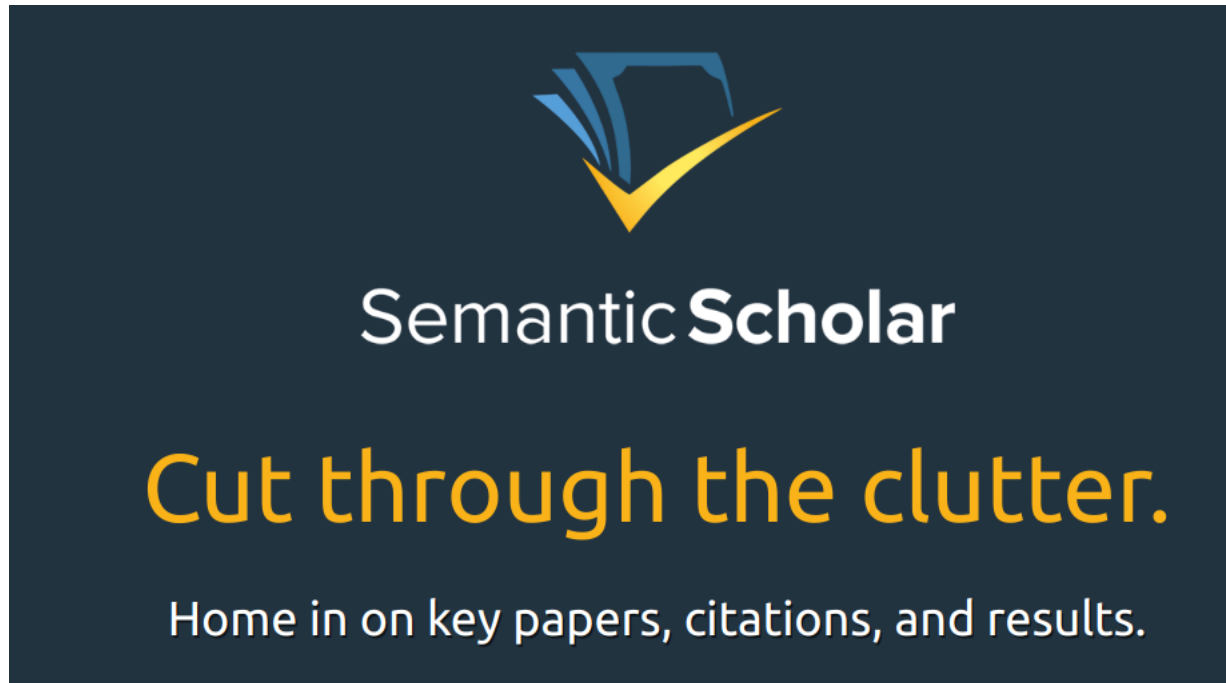




## AI passing 4th-grade science exam?

- Natural language processing
- Deep learning
- Information extraction
- Knowledge representation and reasoning
- Commonsense knowledge
- Diagram understanding

# AI2's Projects: Semantic Scholar (started in 2014)

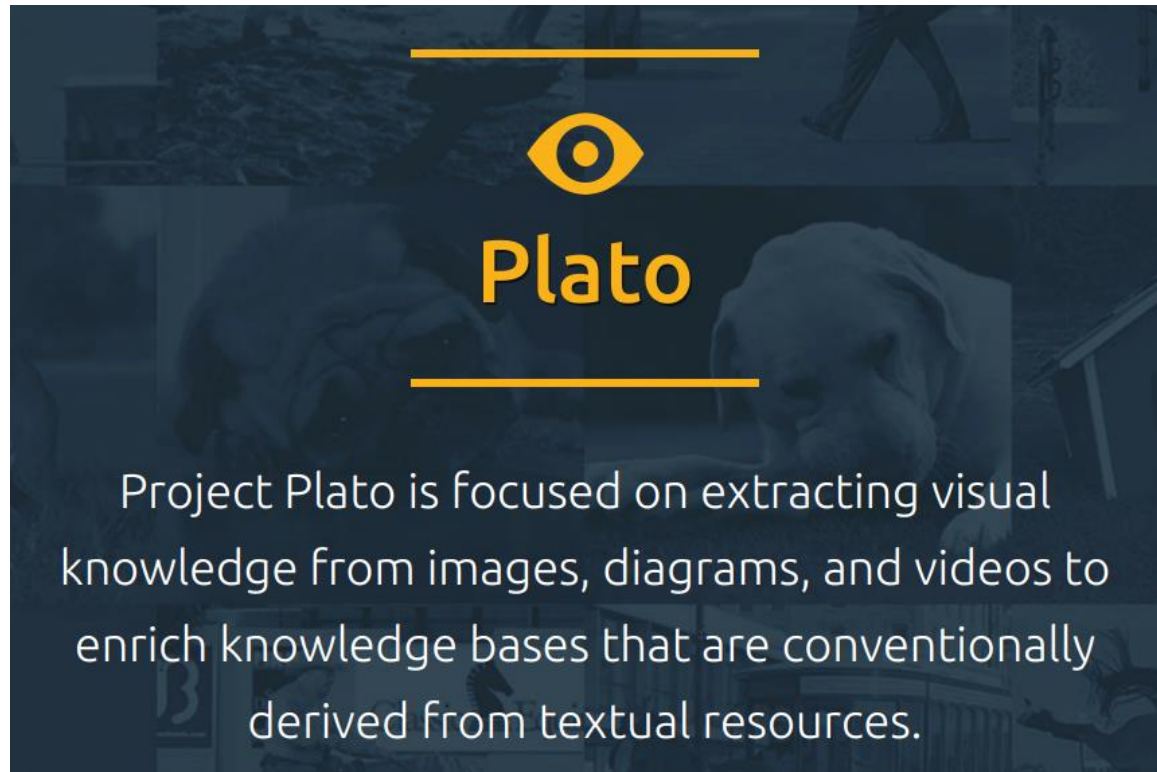


## Leverage AI to combat scientific information overload

<https://SemanticScholar.org>

- Search & information retrieval
- Information extraction
- 7 ▪ Machine learning & deep learning

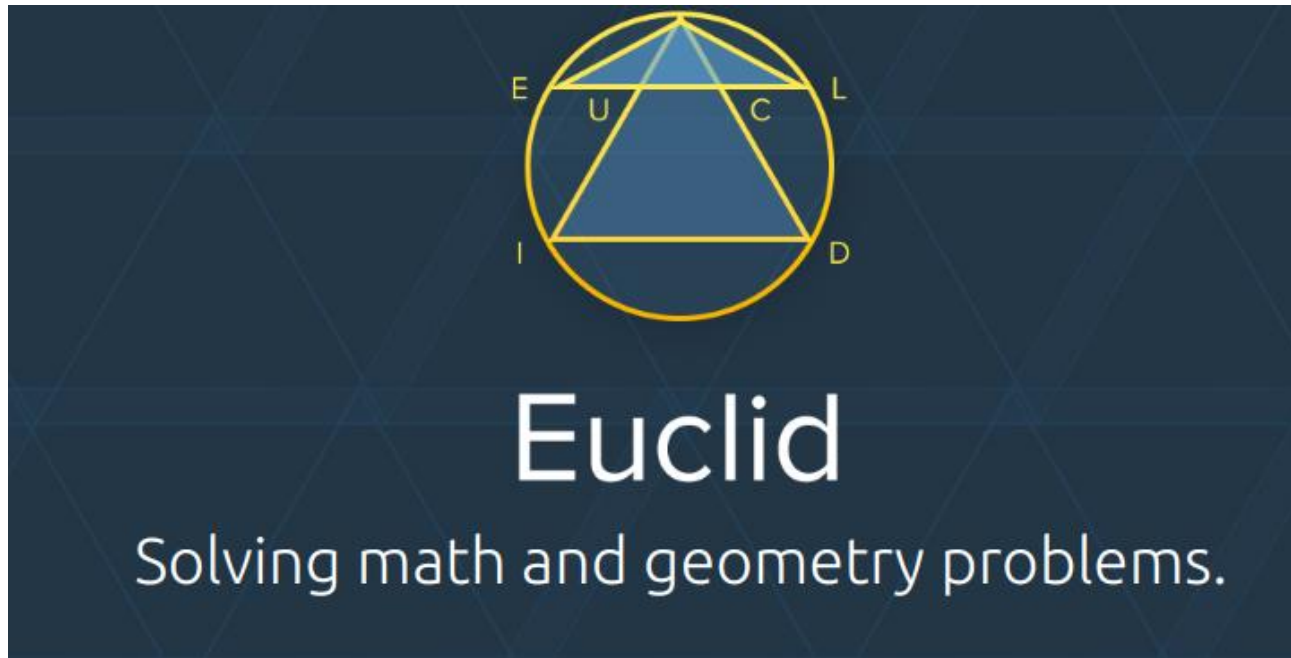
# AI2's Projects: Plato (started in 2014)



**Fundamental research in computer vision**



# AI2's Projects: Euclid (started in 2015)



**AI achieving good results on Math SAT test?**

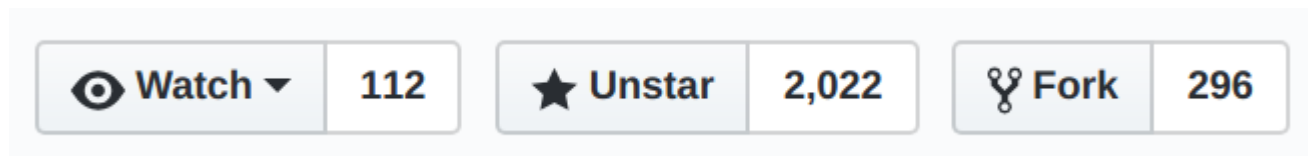
<http://euclid.allenai.org/> (live demo)

# AI2's Projects: AllenNLP (started in 2017)



**Accelerate research in deep learning-based NLP**

<https://github.com/allenai/allennlp>





## AI-Fueled Startups

We pair **the best AI minds in the world** with successful entrepreneurs to build AI startups together.

We're looking for **entrepreneurs** with big ideas and **technologists** who can help deliver them to millions of people.

### Impact with AI commercialization

# AI2's Projects: Alexandria (started in 2018)

## Paul Allen Wants to Teach Machines Common Sense - The New York ...

<https://www.nytimes.com/2018/02/28/technology/paul-allen-ai-common-sense.html>

Feb 28, 2018 - SAN FRANCISCO — Microsoft's co-founder Paul **Allen** said Wednesday that he was pumping an additional \$125 million into his nonprofit computer research lab for an ambitious new effort to teach machines "**common sense**". ... "To make real progress in **A.I.**, we have to overcome the ...

## The Allen Institute for Artificial Intelligence to Pursue Common Sense ...

<https://www.prnewswire.com/.../the-allen-institute-for-artificial-intelligence-to-pursue-...> ▼

Feb 28, 2018 - SEATTLE, Feb. 28, 2018 /PRNewswire/ -- Paul G. **Allen**, Microsoft co-founder and philanthropist, announced today that he is committing \$125 million over three years to support the **Allen Institute for Artificial Intelligence (AI2)** and to launch Project Alexandria – a new research initiative on **common sense** ...

## It's Really Hard to Give AI "Common Sense" - Futurism

<https://futurism.com/teaching-ai-common-sense/> ▼

Mar 11, 2018 - So far, no one has been able to give an **AI common sense**. A new initiative by Microsoft co-founder Paul **Allen** could change that.

## Paul Allen to invest \$125M for new 'common sense AI' project, aims to ...

<https://www.geekwire.com/.../paul-allen-invest-125m-new-common-sense-ai-project/> ▼

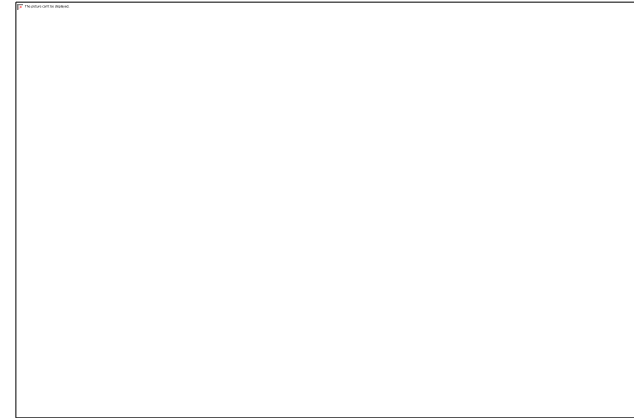
Feb 28, 2018 - Paul **Allen** is pouring more money into **artificial intelligence** research. The Microsoft co-founder on Wednesday announced Project Alexandria, a new initiative that aims to help develop "**common sense AI**." **Allen** is committing \$125 million over the next three years to the project, housed

at the...

# Speaker's background

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# Speaker's background



- '71 : Hộ Sinh A, phố Ngô Quyền, Hà Nội
- '77-86 : Chuyên toán Trưng Vương & ĐHSP ('86 *IMO Gold*)
- '88-95 : BS & MS in Computer Science (Hungary)
- '95-01 : PhD in AI (U. of Wisconsin, USA)
- '01-04 : Basic research (Honeywell Labs, Minneapolis)
- '06-14 : Applied research & engineering (Microsoft, Redmond)
- '14-15 : Co-founder/CTO, Semantic Scholar (AI2, Seattle)
- '16 : Research lead: Aristo & conversational AI (AI2)
- '17-now : Technical director (AI2 Incubator)

# AI2 Incubator: why?

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# Startup Incubator: Nơi Ấp Khởi Nghiệp?

English – detected ▾



startup incubator Edit

Vietnamese ▾



khởi động vườn ươm

Vietnamese ▾



vườn ươm khởi  
nghiệp Edit

English ▾



Nursery start up  
business



# AI2 Incubator: The Prequel - Kitt.ai (2015)

## Products

- ChatFlow: Full-stack, voice-based dialog framework
- SnowBoy: Hot-word detection



Xuchen Yao

Founder/NLP/CEO

PhD  
Johns Hopkins  
ex Google Now



Guoguo Chen

Co-Founder/Speech/CTO

PhD  
Johns Hopkins  
ex Google Speech



Kenji Sagae

Co-Founder/Advisor

PhD  
Carnegie Mellon  
UC Davis Faculty



Yuan Cao

Chief Scientist

PhD  
Johns Hopkins  
ex Google Neural MT

**Acquired by Baidu (2017)**

**Forming the core team at Baidu Seattle**

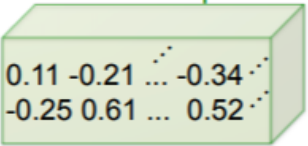
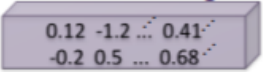
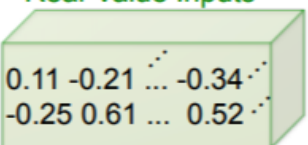
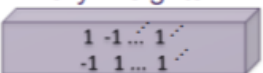
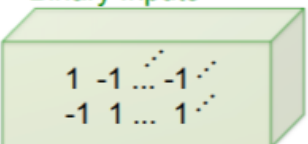
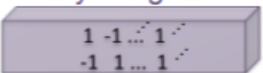
# AI2 Incubator: The Prequel: Xnor.ai (2016)

XNOR-Net: Imagenet Classification Using **Binary** Convolutional Neural Networks  
 Mohammad Rastegari, Vicente Ordonez, Joseph Redmon, and Ali Farhadi ECCV 2016

da

[Product Video \(YouTube\)](#)

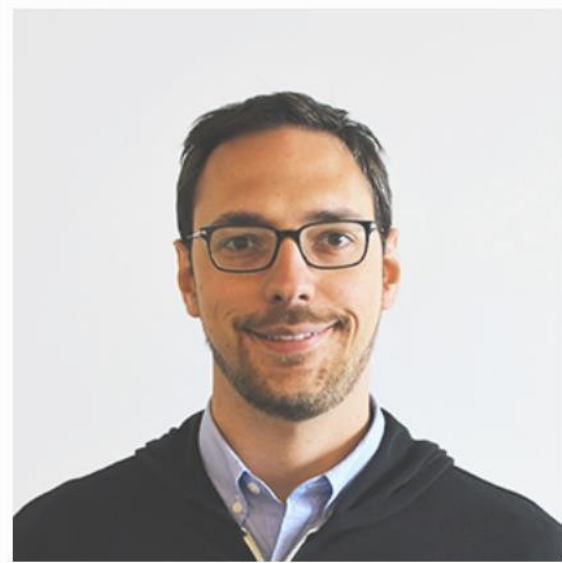
[Technology Demo \(YouTube\)](#)

	Network Variations	Operations used in Convolution	Memory Saving (Inference)	Computation Saving (Inference)	Accuracy on ImageNet (AlexNet)
Standard Convolution	<p>Real-Value Inputs</p>  <p>Real-Value Weights</p> 	+ , - , ×	1x	1x	%56.7
Binary Weight	<p>Real-Value Inputs</p>  <p>Binary Weights</p> 	+ , -	~32x	~2x	%56.8
BinaryWeight Binary Input (XNOR-Net)	<p>Binary Inputs</p>  <p>Binary Weights</p> 	XNOR , bitcount	~32x	~58x	%44.2

- \$2.6M seed round (February 2017)
- \$12M series A (May 2018)

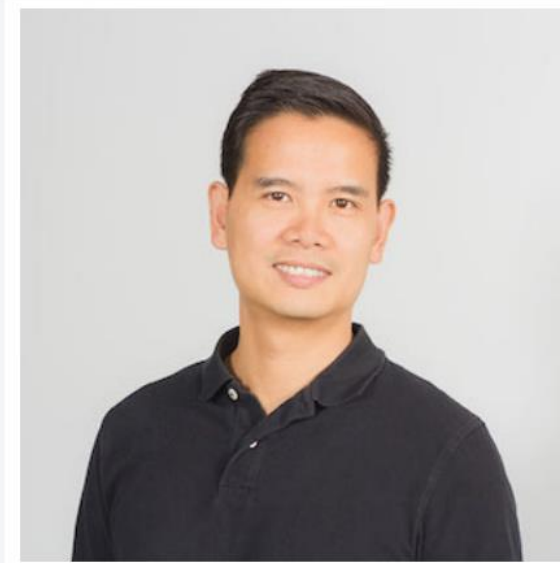
# AI2 Incubator: Doubling Down (Summer 2017)

**Paul Allen's AI institute expands startup incubator after successful artificial intelligence spinouts**



Jacob Colker

MANAGING DIRECTOR



Vu Ha

TECHNICAL DIRECTOR

# Startup Incubator at AI2, but why?

- AI2 is a non-profit research institute
- Startups are for-profit venture businesses
- Conflict?

## Our perspective

- AI2's mission is to contribute to humanity through high-impact AI research and engineering.
  - This can include inventing new products & businesses
  - AI is on the cusp of major business transformations
    - See: [Andrew Ng's \\$175M AI Fund](#)
  - Aim for a fairer, not just wealthier society

# AI2 Incubator: essential information

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# Three ways to incubate

## **CEOs/CTOs IN RESIDENCE**

Top-notch technologists or successful entrepreneurs that want to build another startup with AI at the very core of it.

## **EARLY-STAGE STARTUPS**

Pre-Series A, external companies that are pushing the AI envelope in a focus area for our research.

## **AI2 SPIN-OUTS**

Internal technologies or leaders that are ready to explore commercialization.

# What we provide (why us?)

Depending on each company's unique needs, we can help with:

## TECHNOLOGY

- *AI Coaching and Mentorship*
- *AI Research Support*

## TALENT

- *CTOs-in-Residence*
- Recruiting Assistance
- Immigration Support
- Academic Network

## PRODUCT

- Rapid Prototyping/UX/UI
- \$100K AWS credit

## FUNDING

- \$250K Conv-Note
- Fast-Track Intros to VCs

## GTM VALIDATION & STRATEGY

- Customer Discovery
- Market Research
- Marketing, Sales, PR Support
- Industry relationships

## WORKSPACE

- Interaction With AI2 Team

# Technologies & industries we are interested in

## AI FOCUS AREAS

- Deep Learning
- Computer Vision
- Speech / Voice
- NLP
- Conversational AI

## INDUSTRY FOCUS AREAS

- Health Tech
- Education Tech
- Agriculture Tech
- Energy
- Logistics



# Things we look for in a startup

- Team
- AI
- Market opportunity and size
- Customer traction
- Business model
- Go to market strategy
- Competitive moat
- Exit strategy
- Location: Seattle (or willing to relocate to Seattle)

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# Current Incubatee: Blue Canoe

## AI-based pronunciation coach (intro video)



BLUE CANOE

### CLEAR SPEECH IN JUST TEN MINUTES A DAY

Speak into our mobile game and get meaningful feedback based on the proven Color Vowel® System, leading-edge speech recognition and machine learning technology.

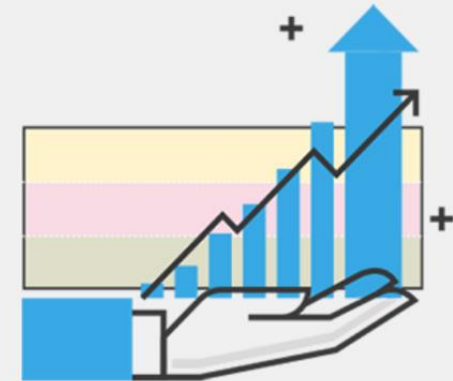
PLAY FOR 10 MINUTES



GET INSTANT FEEDBACK



TRACK YOUR PROGRESS



**Raised \$1.4M seed in 2017**

# Current Incubatee: ClusterOne

Run deep-learning experiments at scale, anywhere



TensorFlow



Caffe



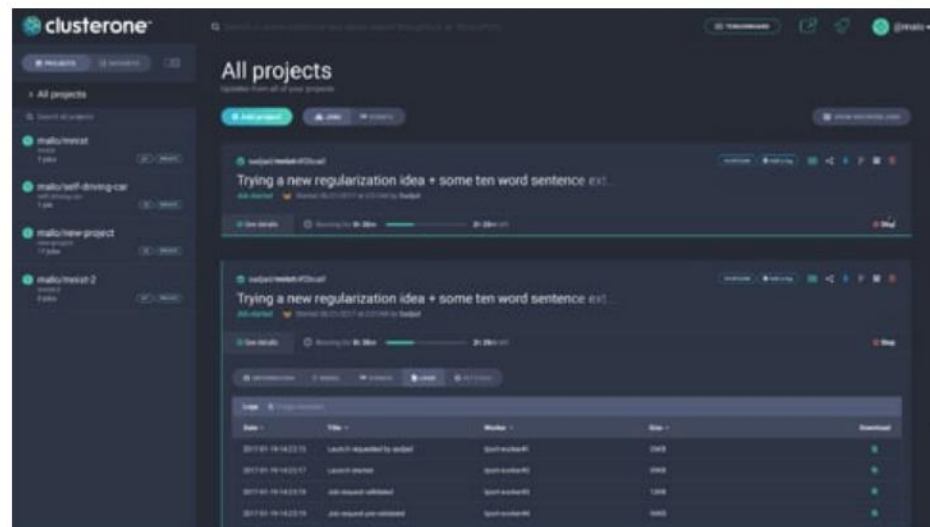
PyTorch



Theano



Keras



Alibaba Cloud



GCP



AWS



Azure



Kubernetes



Bare Metal

**Raised \$2M seed in 2018**

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# Entrepreneurs & CTOs in residence



## Active Talks



## In Pursuit of Relationships





# AI2 Incubator's location





# AI2 Incubator's office



# Summary

- AI is transforming many industries
- AI2 aims to be an active participant
  
- AI2's research: for the common good
- AI2 startup incubator: help create high impact, high growth businesses

