



**CiRACORE**

รางวัลพระราชทาน

นักเทคโนโลยีดีเด่น

ประจำปี 2562

**KMITL**

พระจอมเกล้าลาดกระบัง



คณะเทคโนโลยีสารสนเทศ  
สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง

# AI – BLOCKCHAIN INTEGRATION PLATFORM

รองศาสตราจารย์ ดร. ศิริเดช บุญแสง

คณบดี,

คณะเทคโนโลยีสารสนเทศ

สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง

# AI: BRINGING SMARTER AUTOMATION TO THE FACTORY FLOOR 2017

Andrew Ng Announces Landing.ai—  
Bringing AI to Manufacturing



## Industrial AI Enabler



# Deep Learning Frameworks

Caffe



DEEPLARNING4J

*dmlc*  
**mxnet**



**TensorFlow**

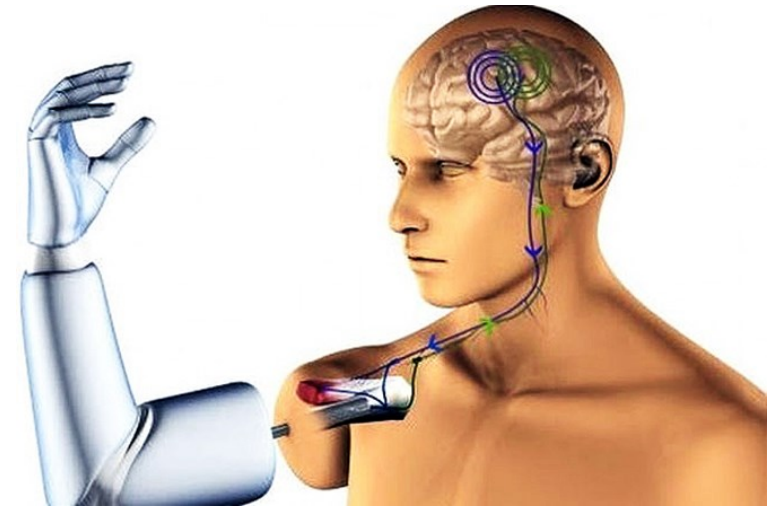
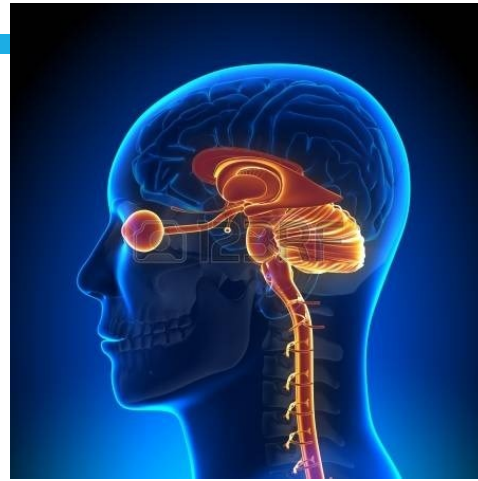
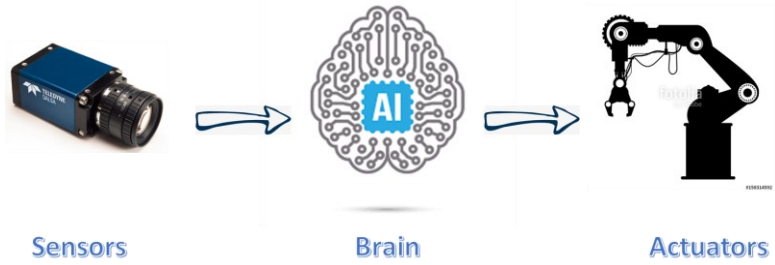
**theano**



- Amazon offers “pay as you go” approach which means a user will pay only for the individual services s/he uses without any long term licensing.
- Microsoft Azure is less expensive than AWS and charges on a minute basis.
- GCP too charges on a minute basis and there are no up-front costs or termination fees.

Service	GCP	Azure	AWS
Image Recognition	Cloud Vision API	Compute Vision API	Amazon Rekognition
Video Recognition	Cloud Video Intelligence API	Video Indexer	Amazon Rekognition Video
Speech Recognition	Cloud Speech API	Speech Recognition API	Amazon Transcribe*
Text Analysis	Cloud Natural Language API	Text Analytics API	Amazon Comprehend
Language Translation	Cloud Translation API	Translator Text API	Amazon Translate*





### Deep Learning Frameworks

Caffe

Microsoft CNTK

DEEPLARNING4J

dmlc mxnet

TensorFlow

theano

torch



**LOW-CODE**

**NO-CODE**

**AI platforms**



Photo Dataset



Generate predictions  
with a REST API



Rest API

## Cloud AutoML Vision



Train



Deploy



Serve

# WHAT IS CiRA CORE ?



**CiRACORE**

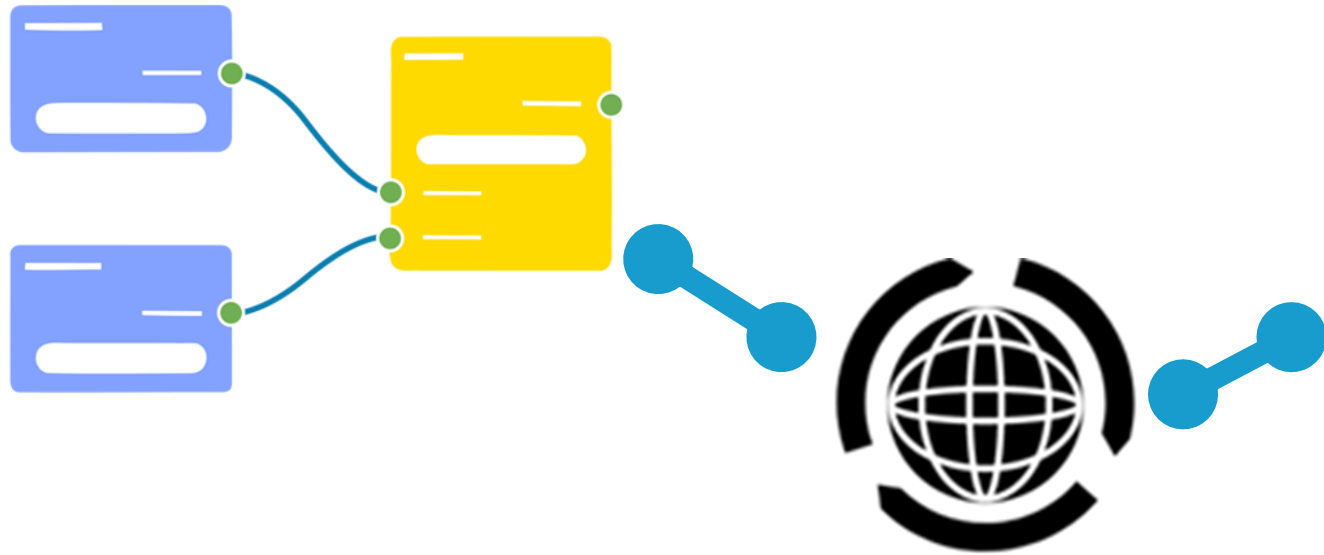
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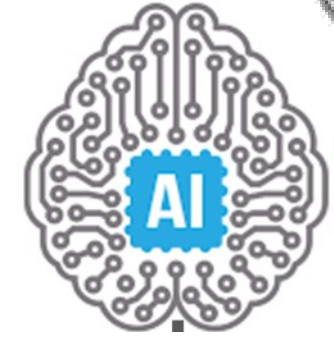
ประจำปี 2562



# Node flow programming



**CiRACORE**

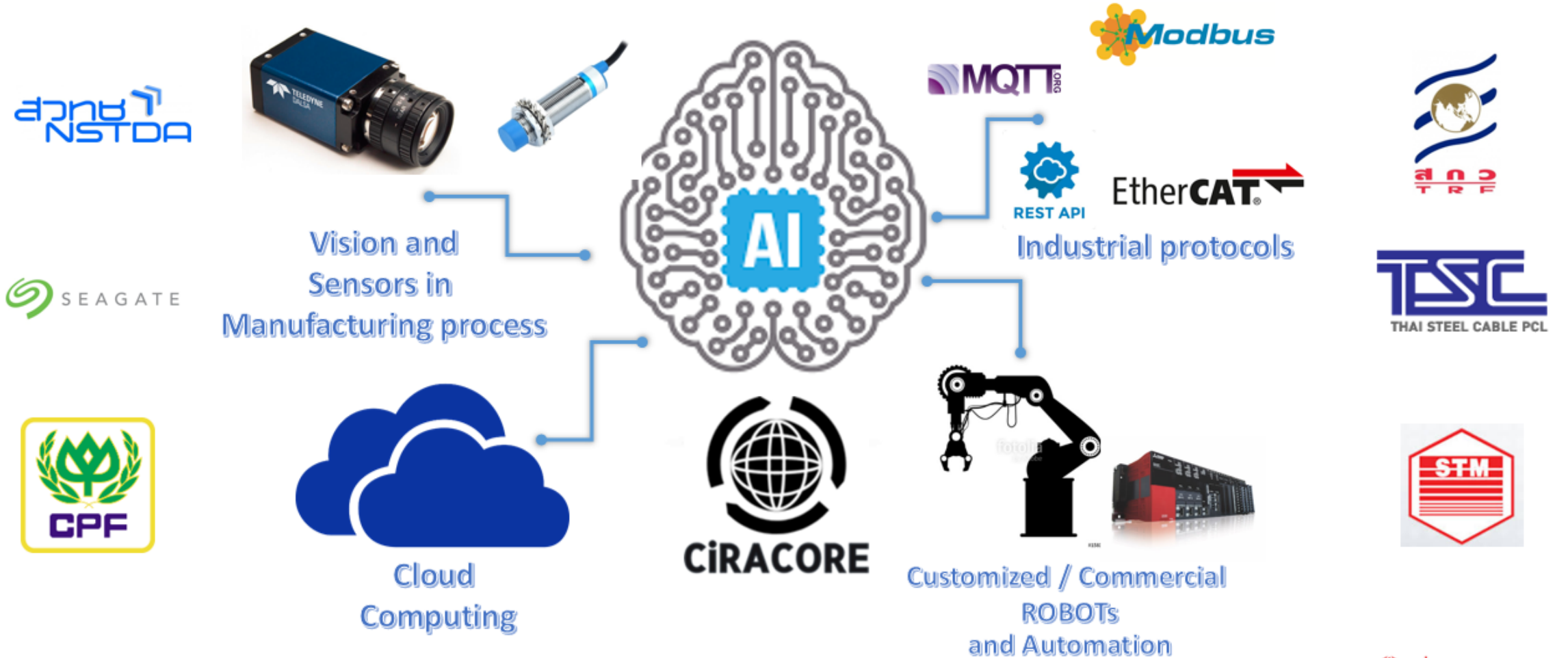


**C++ based  
Modified  
Darknet Lib  
(in-house dev)**



**Industrial Hardware  
Connectivity  
Via ROS industrial**

# Center of Industrial Robots and Automation (CiRA)



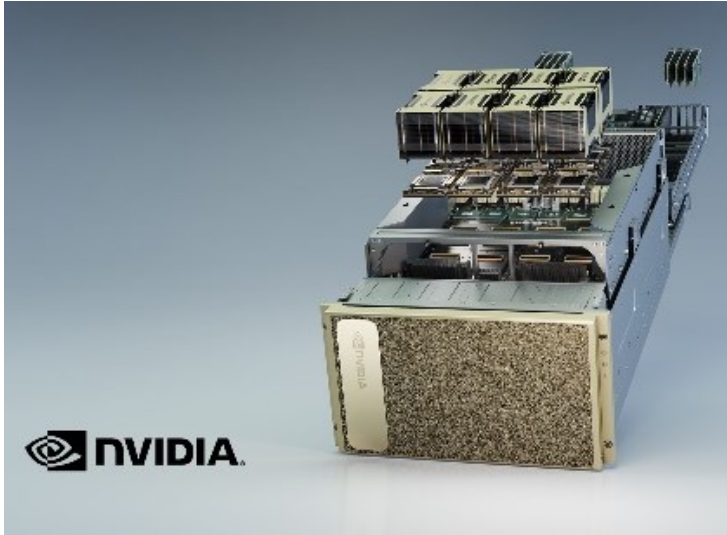
## Industrial AI Enabler

**CiRA CORE = BRAIN POWER + CONNECTIVITY**



## Training the model

Server

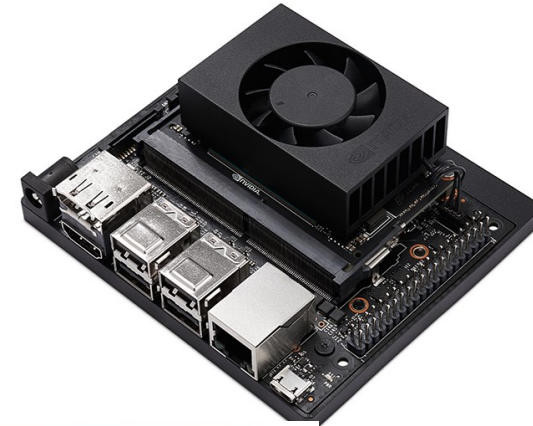


## Deploying the model

Embedded PC with/without GPU



JETSON  
NANO



PC with GPU



Raspberry Pi Zero W

# CiRA CORE consortium

Logos of CiRA CORE consortium members:

- NSTDA (National Science and Technology Development Agency)
- KMITL (King Mongkut's Institute of Technology Ladkrabang) พระจอมเกล้าลาดกระบัง
- สกสว (Science and Technology Advancement Promotion and Development Foundation)
- NRCT (National Research Council of Thailand) วช.
- TGI (Technology Innovation Group)
- PIM (Panyapiwat Institute of Management) สถาบันการจัดการปัญญาภิวัฒน์
- BANGKOK UNIVERSITY (The Creative University)
- KU (Kasetsart University) มหาวิทยาลัยเกษตรศาสตร์
- AIMI (Association of Industrial Machinery and Instrumentation Engineers)
- CIRA (Center for Intelligent Robotics and Automation)
- RMUTT (Rajabhat Mahasarakham University) มหาวิทยาลัยราชภัฏสุรินทร์
- RMUTP (Rajabhat Mahasarakham University) มหาวิทยาลัยราชภัฏสุรินทร์
- CU (Chulalongkorn University) มหาวิทยาลัยจุฬาลงกรณ์

## Permanent Members

Logos of Permanent Members:

- SEAGATE
- TSC (THAI STEEL CABLE PCL)
- CPF (Central Processing Fund)

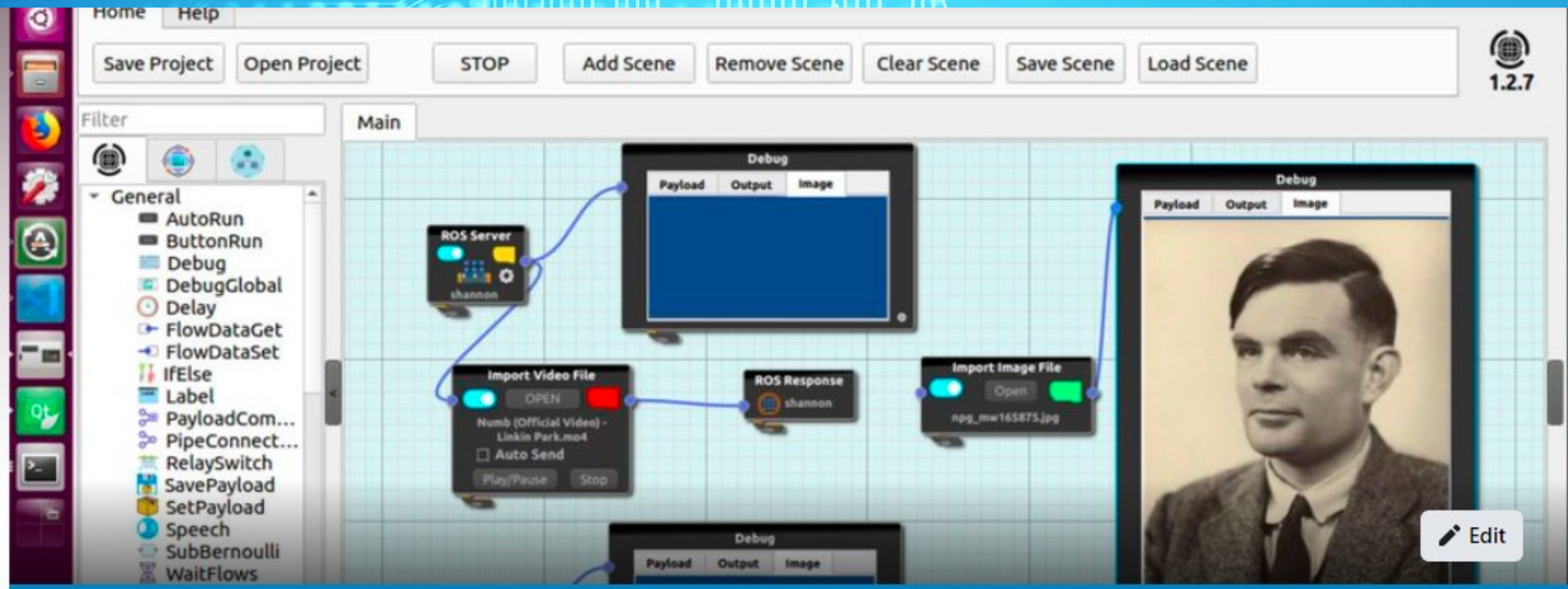
## Licensing managed by

Logos of licensing partners:

- SCG (Siam Cement Group)
- STM (STMicroelectronics)
- TOYOTA (TOYOTA DAIHATSU ENGINEERING & MANUFACTURING CO., LTD.)

Logos of various partners:

- BLUE OCEAN ROBOTICS - for humans
- Western Digital
- ROBOT SYSTEM
- DENSO - Crafting the Core
- Kubota
- SNC (Siam Cement Group)
- TAT (Technology and Automation Technology) Energy & Engineering
- TKK CORPORATION
- livingmall
- SISTOMAT
- BAFS (Bangkok Air Freight Service)
- NPT (National Power Transmission)
- Ford
- CiRA (Automation and Technology) บริษัท ซีอาร์ ออโตเมชัน เทคโนโลยี จำกัด



Group by C i R A - Developer

## CiRA CORE : Community

Public group · 3.1K members

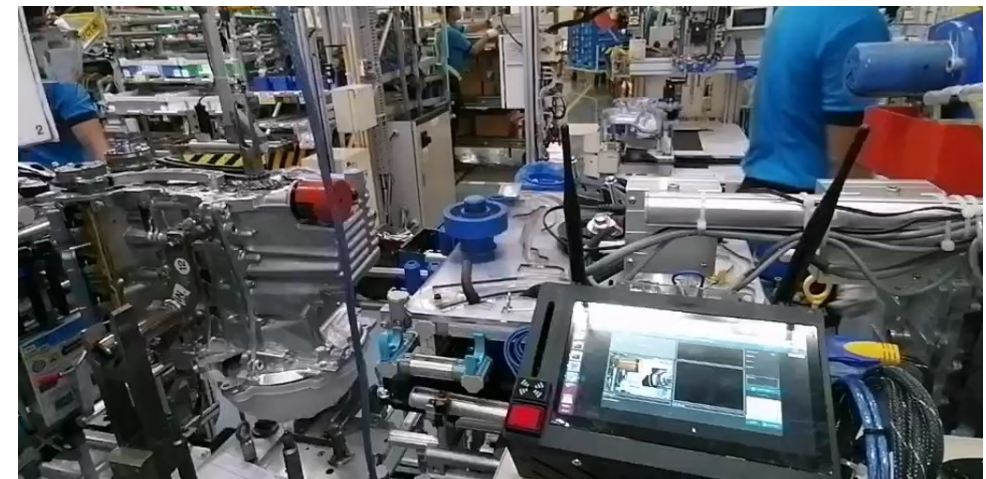
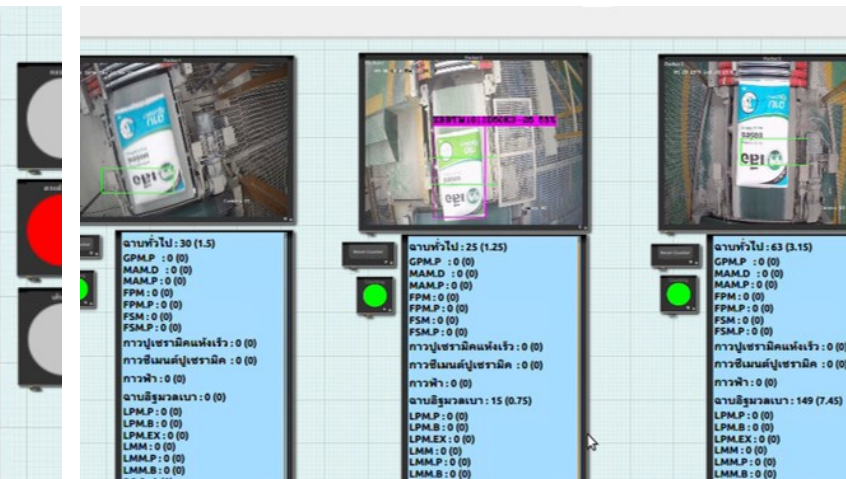
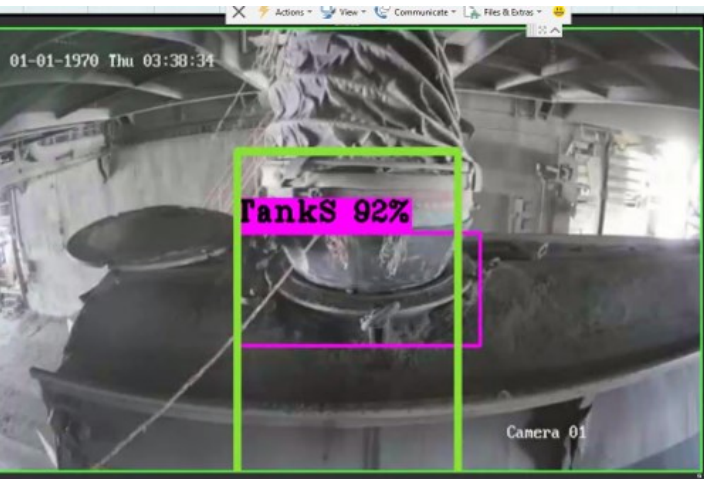
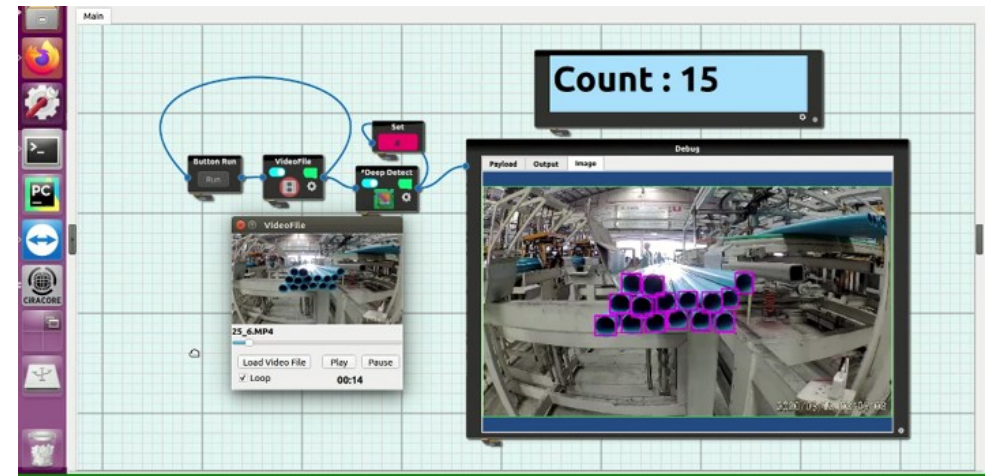


+ Invite

- About
- Discussion
- Announcements
- Rooms
- Topics
- Members
- Events
- Media

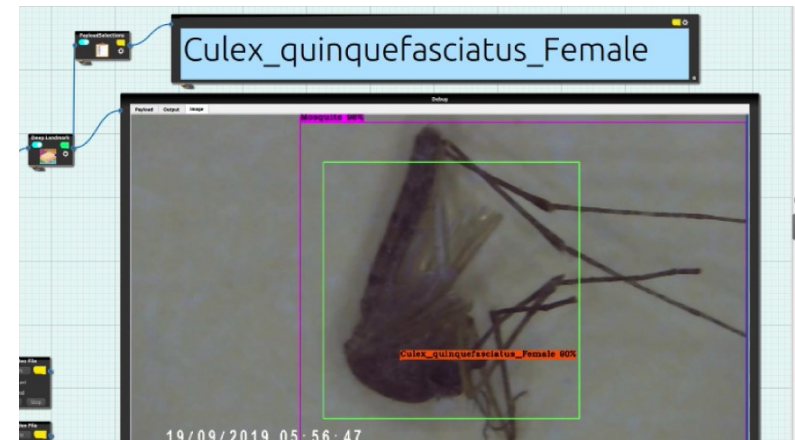
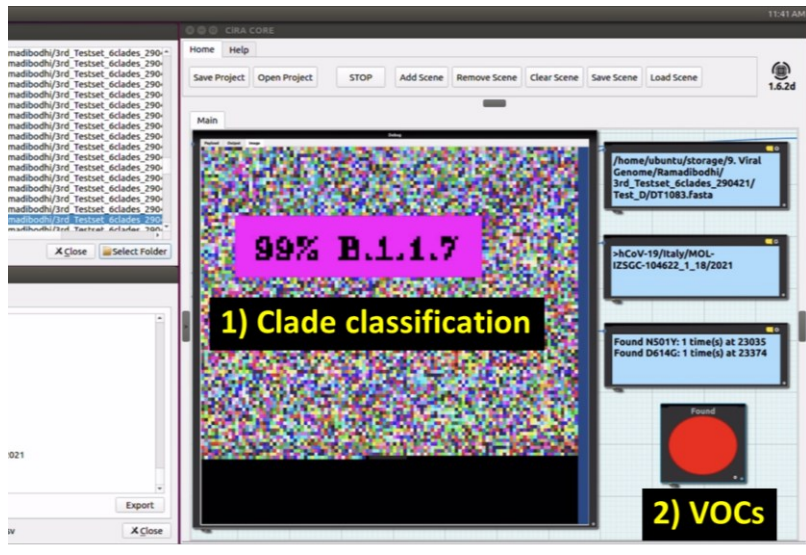
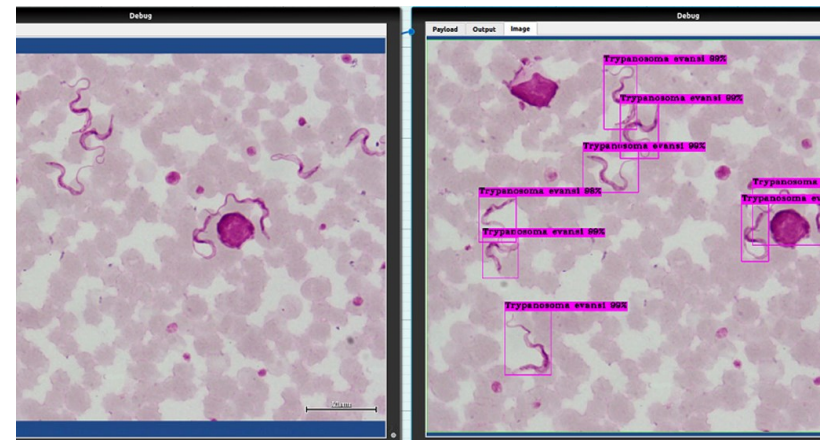


# Industrial applications



# Healthcare applications

COVID-19



# AI reskill/upskill in industrial sectors





A human hand is shown in the upper right, reaching towards a glowing blue robotic hand in the lower left. The background is a solid blue color. The text "Thank You" is centered in the middle of the image.

**Thank You**