附件 5

Sadako Technologies 公司簡報

SADAKO
TECHNOLOGIES

Short Presentation 2018

1. Mission

Sadako Technologies mission is :

- make a better future…
- …building cool stuff…
- … while being an example of good and ethic company

in particular we owe responsibility to:

- our society,

as we want to build a better world for all

- our customers,

to solve their current needs in a satisfactory way

- our investors and financial providers,

to give them a fair return for their investment
while assuring an ethical use of their resources

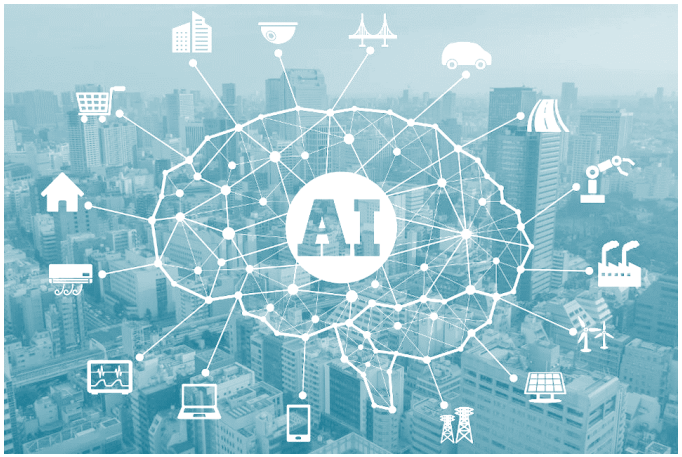
- sadako workers,

to allow a way to live with a meaningful job

2. Vision

A.I. is the New Electricity*

- Current A.I. developments (new algorithms, data, GPU computing, collaborative hardware) puts in the horizon a completely different way of programming software.
- A.I. based software can now perform truly intelligent complex tasks both in the virtual as the real world.



We want to generate A.I. for a better world

*concept popularized by Andrew Ng, one of the most renowned A.I. experts in the present day

3 Recycling Industry: the need

1.9 billion tones of Municipal Solid Waste are generated each year

Only 19% is recycled or recovered*

- Why? → current practices don't allow to go further in a cost-effective way
- Millions of tons of valuable materials (plastic, cans, cartons, etc.) are landfilled or burned in each European country due to this fact, leading to huge environmental and economic damages
- Sorting of materials is a key point in the recycling chain
- Regulation trends will increase market needs in the near future

* See http://www.atlas.d-waste.com/

3.1 Recycling Industry: our contribution

Successful partnership with a major international recycling equipment player to develop a family of Robotic and Artificial Intelligence powered solutions for the waste and recycling industry (Max-AI*)

BHS BulkHandling SYSTEMS + SADAKO TECHNOLOGIES = MAX·AI™

- Max-AI. AQC (Autonomous Quality Control), **first commercial robotic sorting solution for Municipal Solid Waste:**
  - 1ST unit installed in L.A. (USA) in April 2017
  - ≈ 50 further units already sold (4 continents)
  - Ongoing orders

3.1 Recycling Industry: Max-AI

BHS BulkHandling SYSTEMS + SADAKO TECHNOLOGIES = MAX·AI™

- **Advantages:**
  - Up to 65 picks per minute
  - Wide material range recognition
  - Flexible, fast installation, short payback

- **Disruptive advance for the industry:**
  - Improves production and quality of Waste Treatment Plants
  - Reduces opex
  - Reduces human workers in contact with waste (a very critical issue in the field)

* See http://www.max-ai.com/

3.1 Recycling Industry: Max-AI

http://www.max-ai.com/video-max-ai-autonomous-qc/

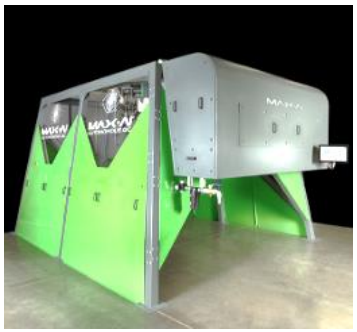
* See http://www.max-ai.com/

3.1 Recycling Industry : Max-AI

BHS + Sadako team is the clear international leader on the A.I. + Robotic solutions in the municipal solid waste recycling field

- Business Model: License agreement where Sadako develops A.I. technology and BHS industrializes, markets, sells and services product.

- A whole family of Max-AI solutions is being jointly developed to bring the industry disruption to a complete level, envisioning an intelligent and fully automatized plant in 2020.

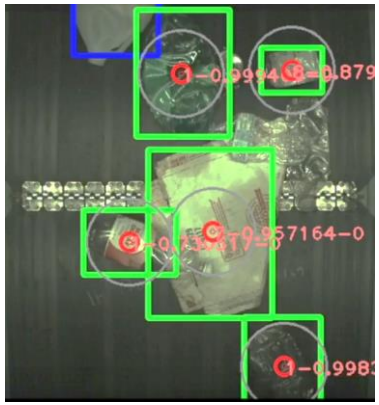


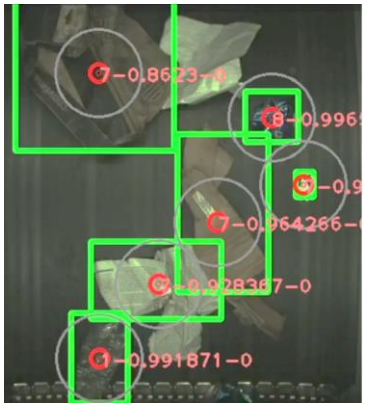
3.1 Recycling Industry: our A.I. tech

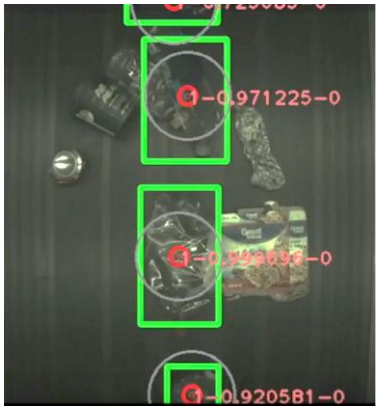
Sadako main contribution:
State of the art A.I. technology able to "see" waste as a human eye

Segmentation and classification of objects in the extremely complex municipal solid waste stream is achieved through:

- Proprietary Deep Learning algorithms.
- Huge annotated waste database
- Optimized continuous model training.
- Real time inference.



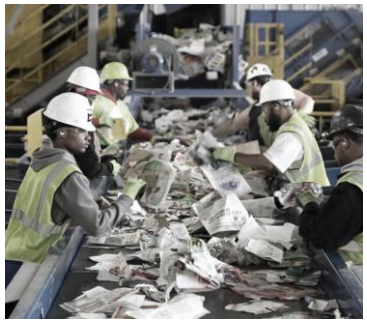




3.2. Other Sorting/Manipulation Industries

A.I. technologies deployed in the recycling industry can be easily used in many other verticals in the same disruptive way

- Market risk on these targeted industries (as experienced in the recycling industry) is really low. Once a commercial robotic product performs (better and cheaper) the tasks that today are done by human workers, virtually every customer wants it.
- Next market we are approaching is e-waste dissasembling.




Value to our customers/partners: “We want to build brains for machines so they can perform those complex (dirty, dull and dangerous) tasks society needs to be done, better and cheaper than a person could”

3.3. E-waste

Direct great opportunity for Sadako to develop an own robotics solution for e-waste (electrical and electronical waste) independently from BHS

- Growing number of gadgets (and more people who can afford them) jointly with shorter cycles of use have led to an enormous increase in electrical and electronic waste. Today most growing waste stream in the world.
- Only 20% of the e-waste generated is documented to be collected an recycled.
- Registered e-waste practices require expensive and time-consuming manual effort for pre-processing the input materials (categorization of electric/electronic devices, disassembling them, sorting of device components).
- Clear need of automation and cost reduction technology.
- Increasing interest of e-manufacturers and public institutions in supporting e-waste recycling initiatives.
- Now in Customer Discovery phase. Estimated product readiness: 2019.

3.4. Other Industries

A wide array of studies agree that between 20% and 50% of jobs will be replaced by A.I. and robots in the next 20 years

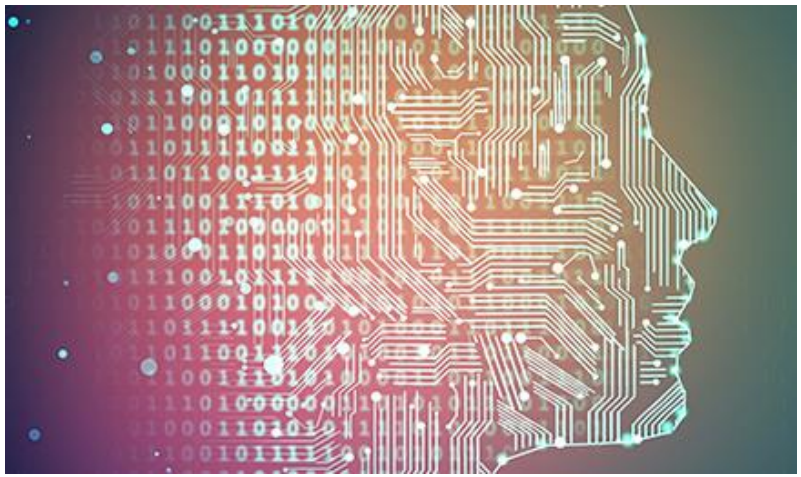
- There is no way to predict now all potential needs that A.I. will be able to solve even in the near future.

- Sadako Technologies, with a deep and robust technology IP and a recurrent income from waste and other industries will be in a privileged position to keep developing **A.I. and robotics solutions to perform the dirty, dull and dangerous works our society needs.**

4. Technology

Our IP is a combination of:

- solid scientific knowledge of theory, methods and algorithms of Artificial Intelligence (mainly Deep Learning)
- extensive know-how and experience on deploying A.I. powered solutions in the real world

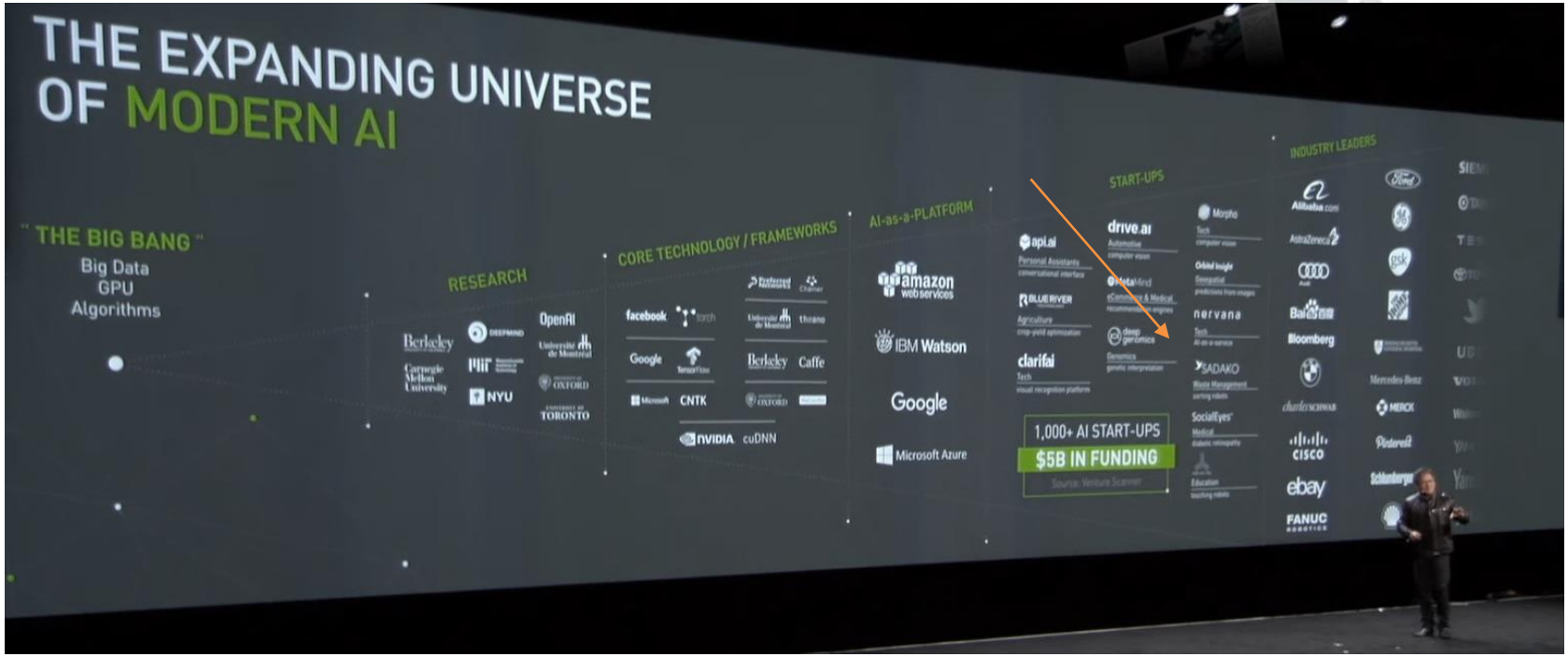


- Our expertise includes:
  - All kind of Machine Learning (mainly Deep Learning) algorithms.
  - Data acquisition, smart annotation and datasets management.
  - Efficient and continuous model training.
  - Real time inference optimization.

  …as well as many other non A.I. specific know-how as software programming and management, hardware, electronics, field deployment and testing, etc.

4. Technology

Sadako technology has received extensive press coverage and has awarded us many recognitions, including 2016 Nvidia Early Stage Challenge in San Jose, CA (100.000 USD prize).

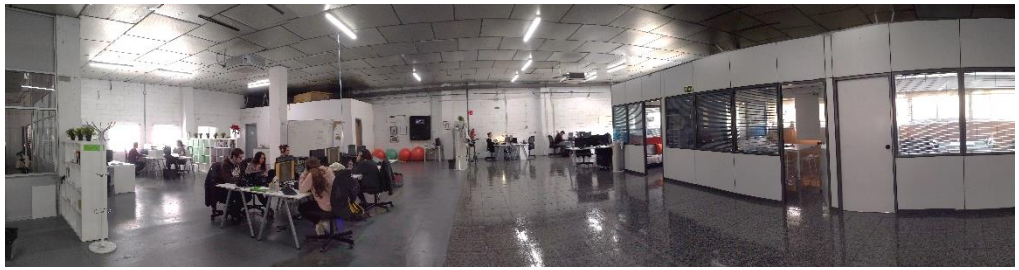


Jen-Hsun Huang (Nvidia CEO) explains the modern A.I. ecosystem to thousands of GPU experts

5. Team

- Team of 18 people with extensive technical experience in Deep Learning, Image annotation, Data Management, Robotics, Software Engineering, Electro mechanics and Field Engineering. Executive team has also wide management, financial and marketing experience.

- 600 m2 technical premises located in L'Hospitalet de Llobregat
- A.I. high computing capacity
- Robotics workshop



6. Financial support

> 3M € invested since incorporation

Our investors and financial supporters include:

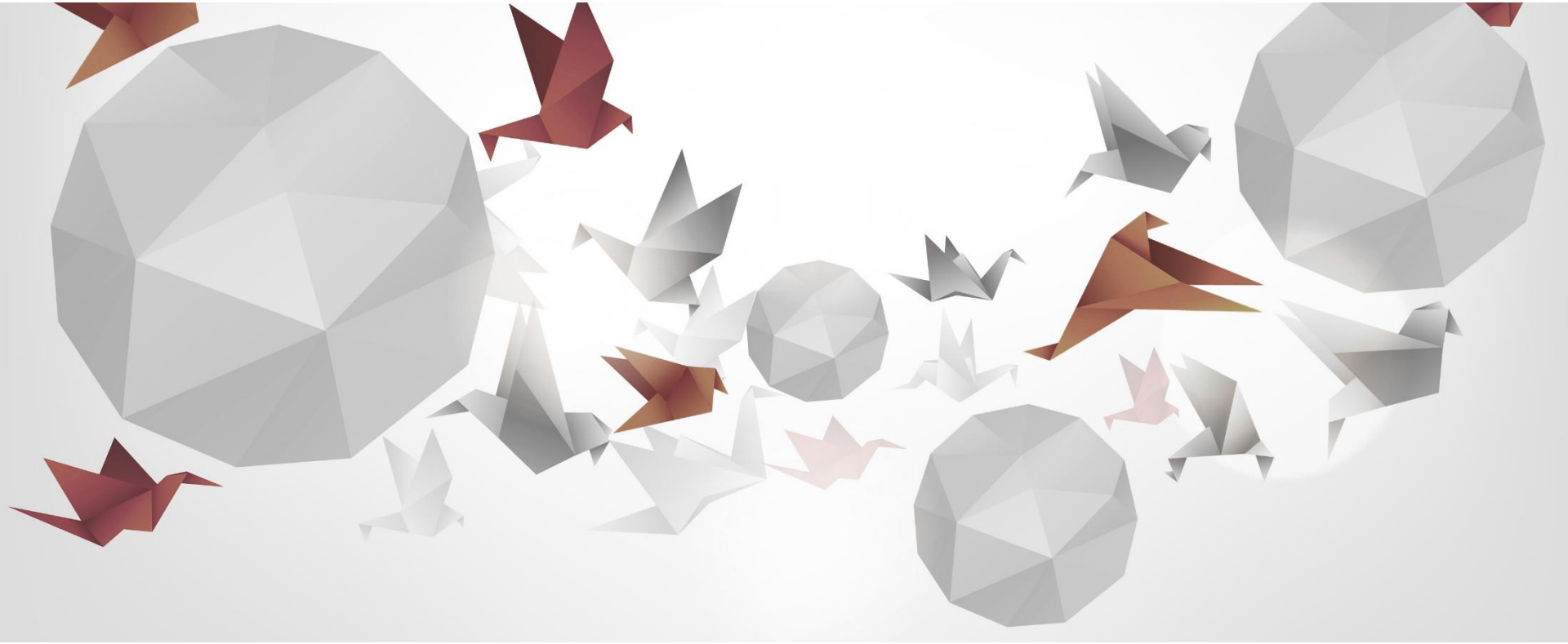
- technological oriented VCs, social and environmental oriented VCs as well as private investors.
- Pro-innovation public and private organizations, including European Community support via an SME Instrument Grant (1,2 M€).

We expect our financial supporters to:

- Believe in our mission and vision.
- Contribute not only with economical resources but also to broad our horizons with experience and networking.
- Enjoy the feeling of being part of Sadako Technology's adventure.

Sadako Sasaki, whose memory gives name to our company

SADAKO
TECHNOLOGIES



Thank you

www.sadako.es