Revolutionize the Service Industries with AI

2016 Service Robot

Clever-m 632 Robot Intelligence Laboratory
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Outline

1 Industry Trends
2 States of Service Robot
3 Powered by NVIDIA TX1
4 Clever mRobot Introduction
Industry Trends

Inflection Point

New Trends, New Challenges, New Opportunities
Industry Trends
New Age of AI & Robot is Coming

Next Age
AI & Robot

1990s~2000s
Internet Age

1980~90s
Communication Age

1970~80s
PC Age
Industry Trends
Opportunities for Service Robot in China

- China is relatively backwardness
- China's Advantage

- Service Robot

- Commercialization, Mass Production
- At The Same Starting Line in Global

- The **Largest** and **Most Active** Group of Internet Entrepreneurs, **Big Data**
- More than **90%** cell phone manufactured in China
- **Market Space of China**
Industry Trends
Observation of the Law of Industrial Development

The transition from the second stage to the third stage
States of Service Robot

Huge Market

Require A.I. exploding robot market
States of Service Robot

Ideal Robot
- EX Machina
- Big Hero 6
- Transformers

Service Robot in Research

Real Service Robot
Description: The circular area represents the market potential.
States of service Robot
Application Mode & Scene

**Application Mode**
- **Service Mode**
  - Now: Provide one-way service
  - Future: The service completed by human-computer interface
- **Effect**
  - Now: Mechanical, Simple, Unsustainable
  - Future: Sustainable, Personalized
- **Value**
  - Now: Implement useful task, Assist human
  - Future: Self-learning, Assist or replace human to solve the problems

**Application Scene**
- **To C**
  - Replace: Machine Translation, Sweep, Machine Recognition
  - Assist: Living Remind
- **To B**
  - Replace: Business Consulting, Transport, Business Processing
States of service Robot
Strengthen Five Techniques

“Strengthen & Breakthrough

• More practical value
• Match people’s expectation of service robot
• Low cost & High performance

01 Emotional Perception
Recognize, identify etc.

02 Brain
Analysis, understanding, decision-making

03 Environment Perception
Vision, Auditory, Sense of touch etc.

04 Smart Navigation
Laser, Vision etc.

05 Smart Control
Movement, head, hands etc.
Powered by NVIDIA TX1

Jetson Embedded Platform

Real Time A.I. in Service Robot
Powered by NVIDIA TX1
Why Choose Nvidia Jetson TX1

**UNMATCHED PERFORMANCE**
- 256 CUDA cores + 64-bit 8 CPUs
- Deep Learning + Control application

**LATEST TECHNOLOGY**
- DL Framework
- Real time Recognize application

**THE BEST EMBEDDED DEVELOPMENT PLATFORM**
- Supply Current: 1.2A (CPU 2 GHz)
- Max work time: 27h
- Battery: 24V, 20Ah, lithium iron
POWERFUL BRIAN

- Integrate NVIDIA Jetson TX1
- Running real-time DL application

SENSITIVE Auditory

- Joint Debugging MIC array with designer
- Provide voice service in noisy environment

CENE UNDERSTANDING

- Quickly capture the focus of the scene
- Understanding and analysis

VISION & AUDITION

- Vision and Audition fuse in inextricable magic
- Enhanced interactive experience

MOTION VOICE

- Personality voice
- Enhanced interactive experience
Data Training on Tesla:
• Pre-train
• Fine-tune

Jetson TX1 Applications:
• Object Detection and Classification
• Face Analysis
• Semantic Segmentation
1) Object Detection and Classification

2) Face Analysis

Powered by NVIDIA TX1
Jetson TX1 Application Demo
3) Semantic Segmentation
Nvidia Inception Program

- The latest NVIDIA technology
- GPU and deep learning experts
- NVIDIA’s global sales and marketing network
- Hardware discounts, grants, or remote access
- Training from NVIDIA Deep Learning Institute
- Introduction to GPU Ventures

Clever mRobot Advantage

- DL & CV R&D ability
- more than 90 R&D engineers, and continue to rise
- Industry & successful product experience
- Massive hardware manufacture

Reach the third stage ASAP, through A.I.
Clever mRobot Introduction

Customer·Excellence·Unity

Revolutionize the Service Industries with AI
Clever mRobot Introduction

Clever mRobot Growth

2014~15 : Start up, Exploration Stage

- Aug. 2015 Move into 1,500m² new office
  Award 2015 Shanghai special incentive of information project
- Sept. 2015 The first generation product launched
- Aug. 2015 Acquire XXM Investment

2016~17 : Development, Large-scale Stage

- Aug. 2016 Cooky applied in several industries, xxx employees, 70% R&d
- Jul. 2016 Jiangsu production base
- May 2016 632 Robot Intelligence Laboratory
- Mar. 2016 Cooky launched; 60+ patents

Sept. 2014, Clever mRobot Founded

Cooky applied in several industries, xxx employees, 70% R&d

Jiangsu production base

632 Robot Intelligence Laboratory

Cooky launched; 60+ patents

Clever mRobot Growth
Clever mRobot Introduction
Vision & Business Concept

- high labor costs
- homogenization of competition
- poor consumer experience
- low management efficiency

Vision: Revolutionize the Service Industries with AI

Start from Catering → Extend to Other Industry → Realize

Tech.

Vision & Business Concept,

Smart Hardware, Artificial Intelligence, Internet, Emotion, Innovative Industry Solution
Clever mRobot Introduction

Goal

Building NO.1 Hardware Brand Of World’s Service Robot
THANK YOU!