Virtual Human Agent
born from Connectome

October 11, 2018 @ Stanford University

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Today’s Index

1. What Interface do we need in the near future
   Atsushi Ishii: 25min

2. How to ensure the reliability of Data and AI
   Kazuaki Ishiguro: 25min
Atsushi Ishii  
Co-founder of Connectome, Couger CEO  

Large-scale search engine development, such as IBM and Rakuten. Japan, USA, and South Korea cross-country online game development. Cloud robotics development in the NEDO Next-Generation AI Project. Visiting researcher at the University of Electro-Communications.
Is The Next Generation Interface Combining AI x AR x Blockchain
Towards creating the world of Blade Runner

From a world of voice-activated AI assistants to one with virtual assistants that can replace human beings. Connectome is developing that technology.

Current AI assistants

Music and other special services

AI assistant of the future

Virtual service that replaces humans
Why now? Taking a look at innovative change

New interfaces require innovative technology, in this case with reliability, interoperability, and digital contents as key.

Interface innovation

90’s～ 00’s～ Now
Why now? Taking a look at innovative change

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Interface innovation

90’s～ 00’s～ Now

- Mega-player’s data and AI’s decline in reliability
- Equipping any device with AI
- 5G×AR, digital content innovation

New interfaces require innovative technology, in this case with reliability, interoperability, and digital contents as key.
The Next Generation Interface
Virtual Human Agent
Virtual Human Agent (VHA)

- Possesses sight and sound
- Understands space and object
- Able to converse smoothly
- Real-time reaction
- Have feelings and continuous memory
- Connect to IoT Devices
Possess Feelings, Gestures and Expression

Human Interaction

Acceptance / Encouragement

Positive / Relief

Decline

Negative / Anxiety
Potential of human-like interface

- Surveyed the impact of the University of Southern California on people's communication.
- When asking a person using virtual human, compared to the case of only voice
  1) response rate increased by 17%
  2) The response time was found to rise by 19%
- A project in which autistic patients talk to virtual humans and lead to symptomatic improvement
- 60% of patients responded that it is easier to talk with virtual humans than real people

Source: https://dl.acm.org/citation.cfm?id=2814957
Source: https://www.cs.rochester.edu/hci/pubs/pdfs/lissaasd.pdf
Different approach of Connectome

The combination of the best AI characters of a game company and the development of VHA melded with human society.

Various usages

Sharing of human feeling and expression

Able to correspond with society

Comprehension AI

Specific purpose AI

Character AI
Virtual Human Architecture Overview

Input/Comprehension:
- Vision: Object, Scene, Face, Pose
- Sound: Voice, Background
- Touch: Haptics
- IoT Sensors

Processing:
- Unconscious

Make decision:
- Emotion
- Decision
- Personality
- Behavior Tree

Output:
- Human Action: Facial Expression, Gesture, Talk, Move
- IoT Devices
- Services API
Virtual Human Architecture Overview

Input/Comprehension
- Vision
- Object
- Scene
- Face
- Pose
- Sound
- Voice
- Background
- Touch
- Haptics
- IoT Sensors

Processing
- Unconscious
  - Focus (Filtering)
  - Exception
  - Search Memory
  - Semantic
  - Episodic
  - Temporarily
- Emotion
  - Pleasure
  - Sad
  - Angry
  - Happy

Make decision
- Personality
  - Scenario
  - Skill
  - Roll
- Decision
- Behavior Tree

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Machine Learning
Game Method/Al
Original Human Science
Diversification for multiple use cases

Aiming to change from limited-capability AI agents to VHAs capable of contributing to human society through a variety of applications.

Opening up a huge market through society application
You can develop your original VHA

By providing SDK, Connectome creates an environment where developers / creators all over the world can develop a variety of VHAs and purchase them.

A variety of VHAs

Connectome Market (VHA Marketplace)

- Receptionist
- Car Guide
- Game/Entertainment

Creators all over the world gather
Definition of Cars and Mobility will change
Nice.
Summary

• Human like interface creates a trusting relationship between humans and AI.

• As multiple use cases expanded, the demand of diversification of VHA grow.

• It is important to have a mechanism to create reliability of data and AI.
Thank you!

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