

Robots, Androids and Our Future Life



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Geminoid




Internet



Operator



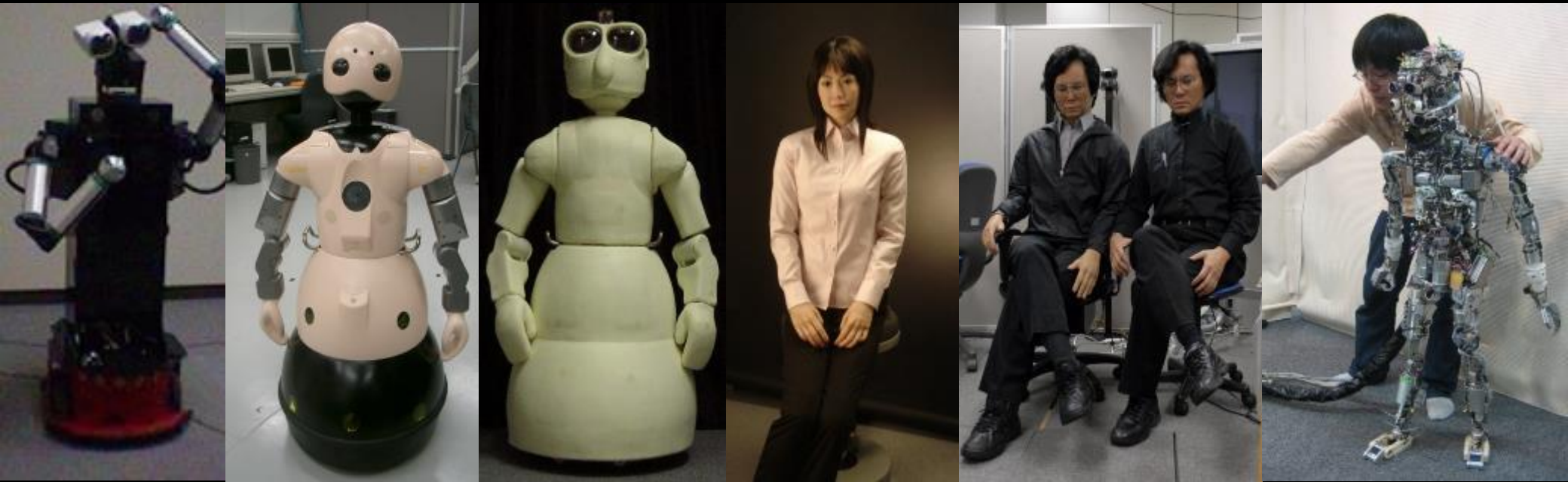
What is identity?

- 
- Who has the Ishiguro's identity?
 - Is it Ishiguro or the geminoid?





Robotics for understanding humans



- **Develop humanlike robots based on knowledge in cognitive science.**
- **Verify hypotheses in cognitive science by using the robots.**

Studies on human-robot interaction



Interactive robots

Social relationship



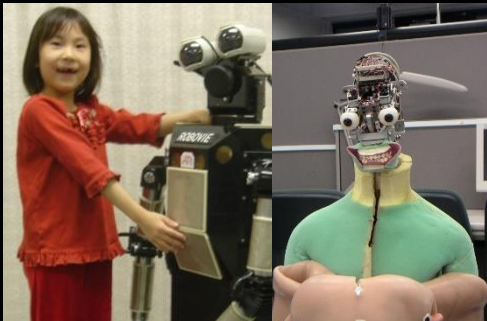
Autonomous android



Uncanny child android

Studies on human likeness

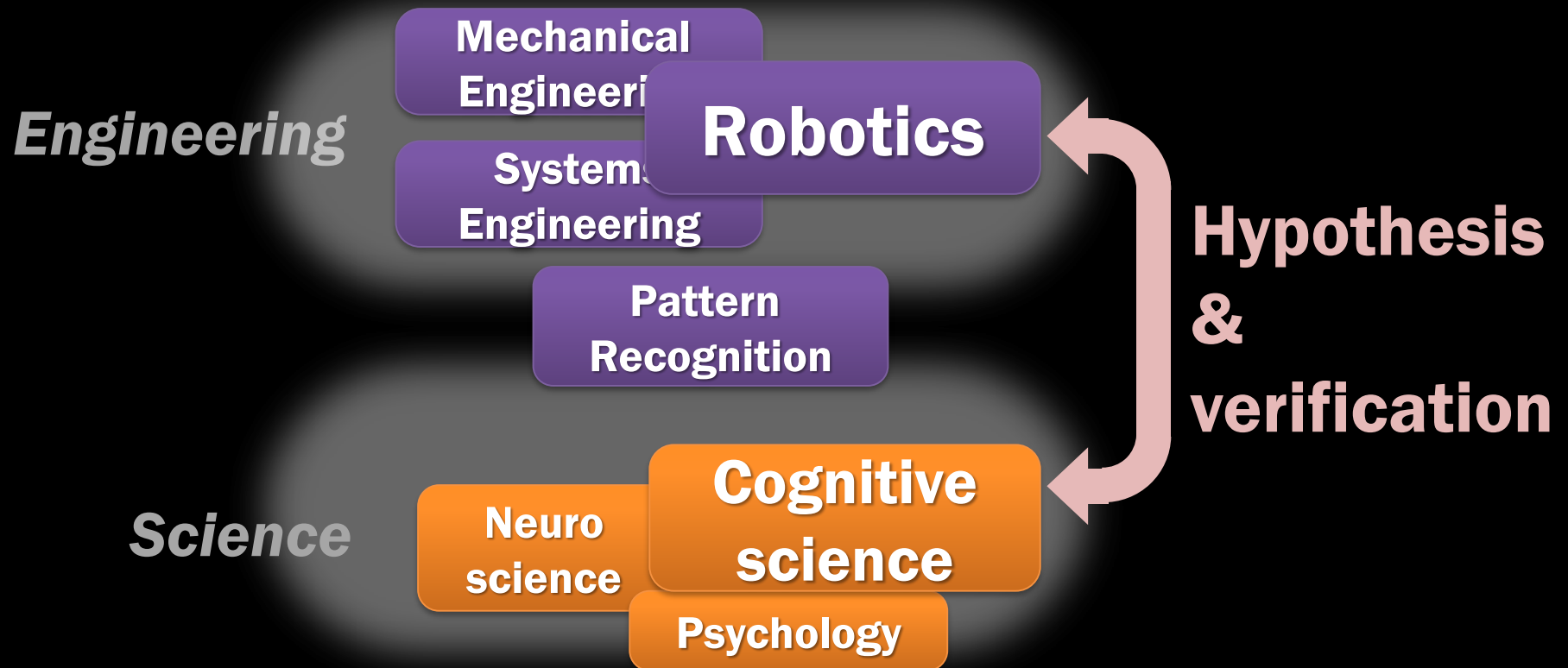
Teleoperation



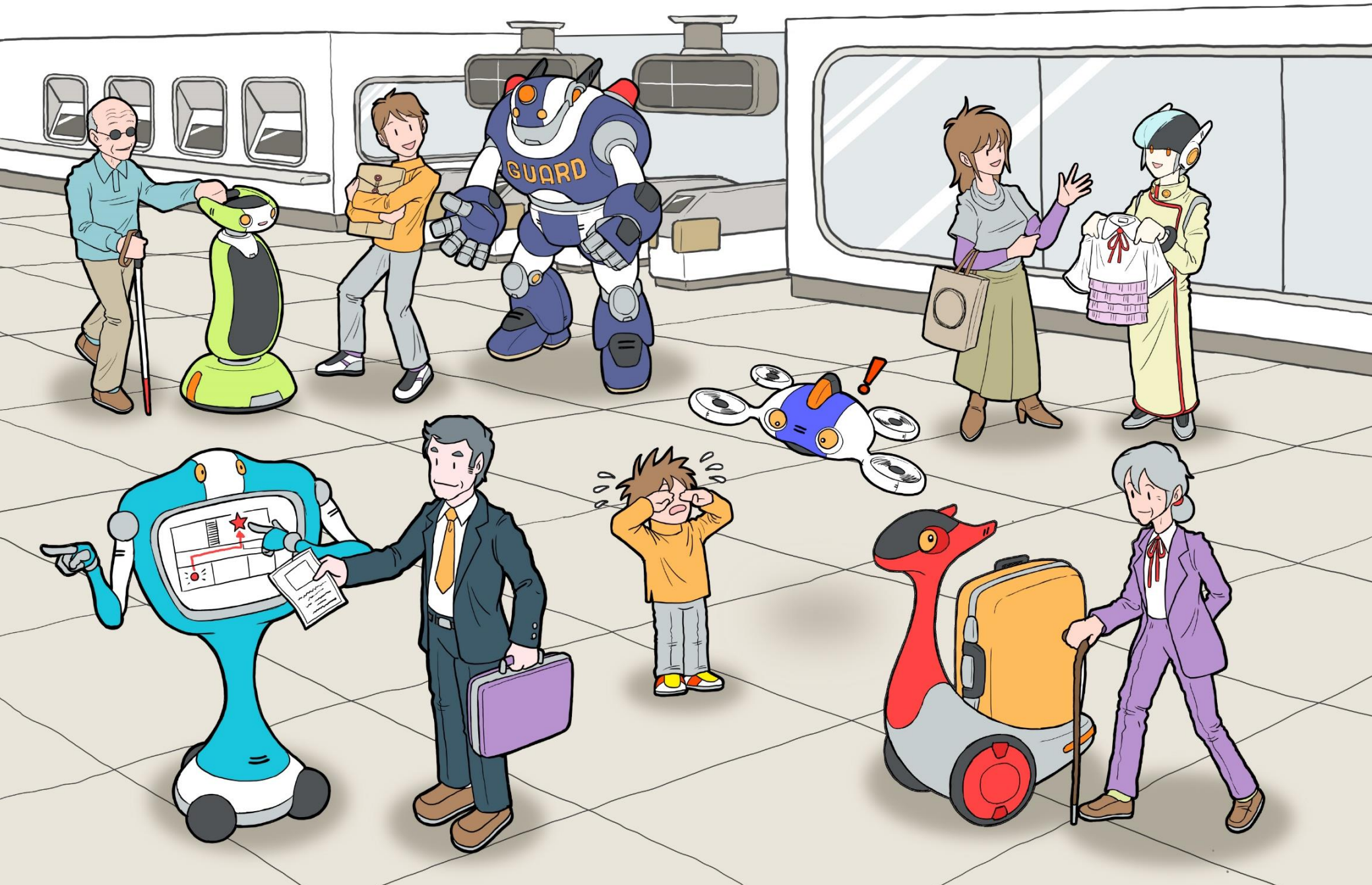
Internet

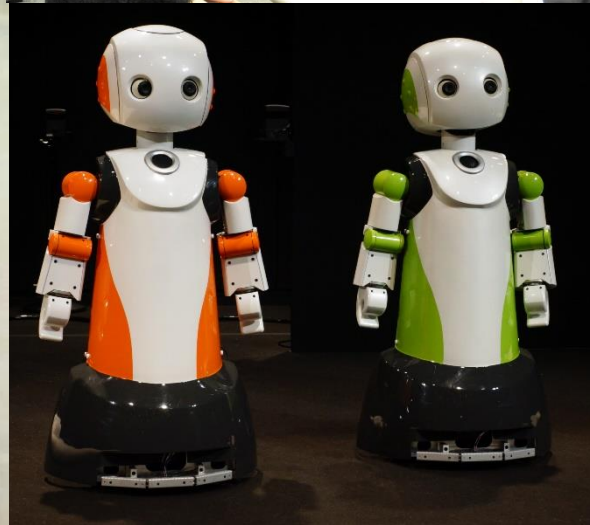


Future robotics



Robot Society





**Robot
Society**



Why do we use humanoids?

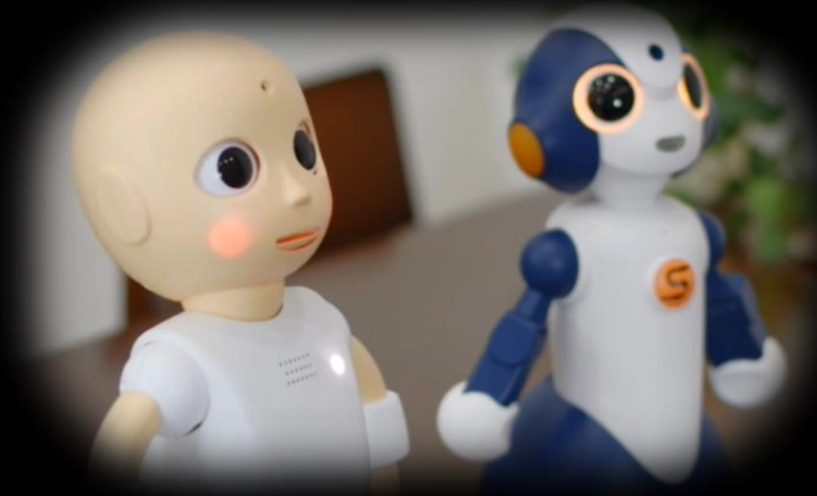


- **Humans have brains that recognize humans**
- **The ideal interface for humans are humans.**

Within 10 years

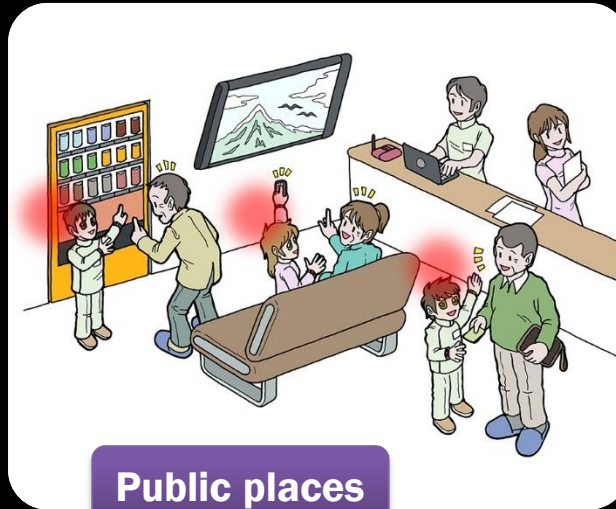
Personal Robots

Interactive Communicative Robots



The future society supported by humanoids & androids

Humanoids



Androids for extending the human presence



Ishiguro's android Geminoid



Android of a living national treasure



Android of a living national treasure



Android of a great literary figure



Androids and human presence



What is human presence?



- The android is more popular than the original.
- Which presence is stronger?

Androids for representing humanlikeness in artistic areas



Android in the show window



Android as an idol singer



What is beauty?



- Which is more beautiful, humans or androids?
- Beautiful humans are not humanlike but we want to be beautiful.

Android theater

with Oriza Hirata



Movie “Sayonara (Goodbye)”



What are hearts and minds?

- **Everyone feels the humanlike hearts and minds of the android, but it is a simple computer program.**



**Androids working
instead of humans**



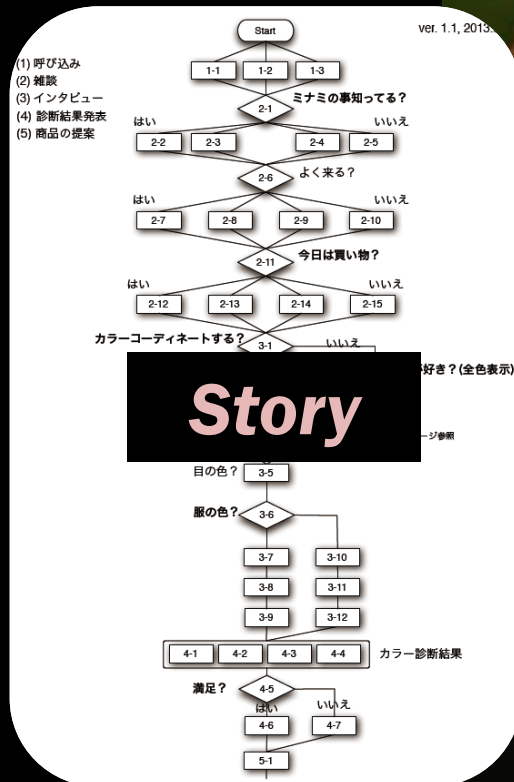
Shopkeeper android



Conversation without speaking

- Selecting an option is much easier than speaking.
- The visitor does not have many stories in his/her head.

Android voice



Android of a TV host



After 10 years

Teleoperated androids transferring the human presence



Geminoid: Teleoperated android to transfer human presence



Internet



Operator

Meeting with a geminoid



Adaptation to a geminoid's body



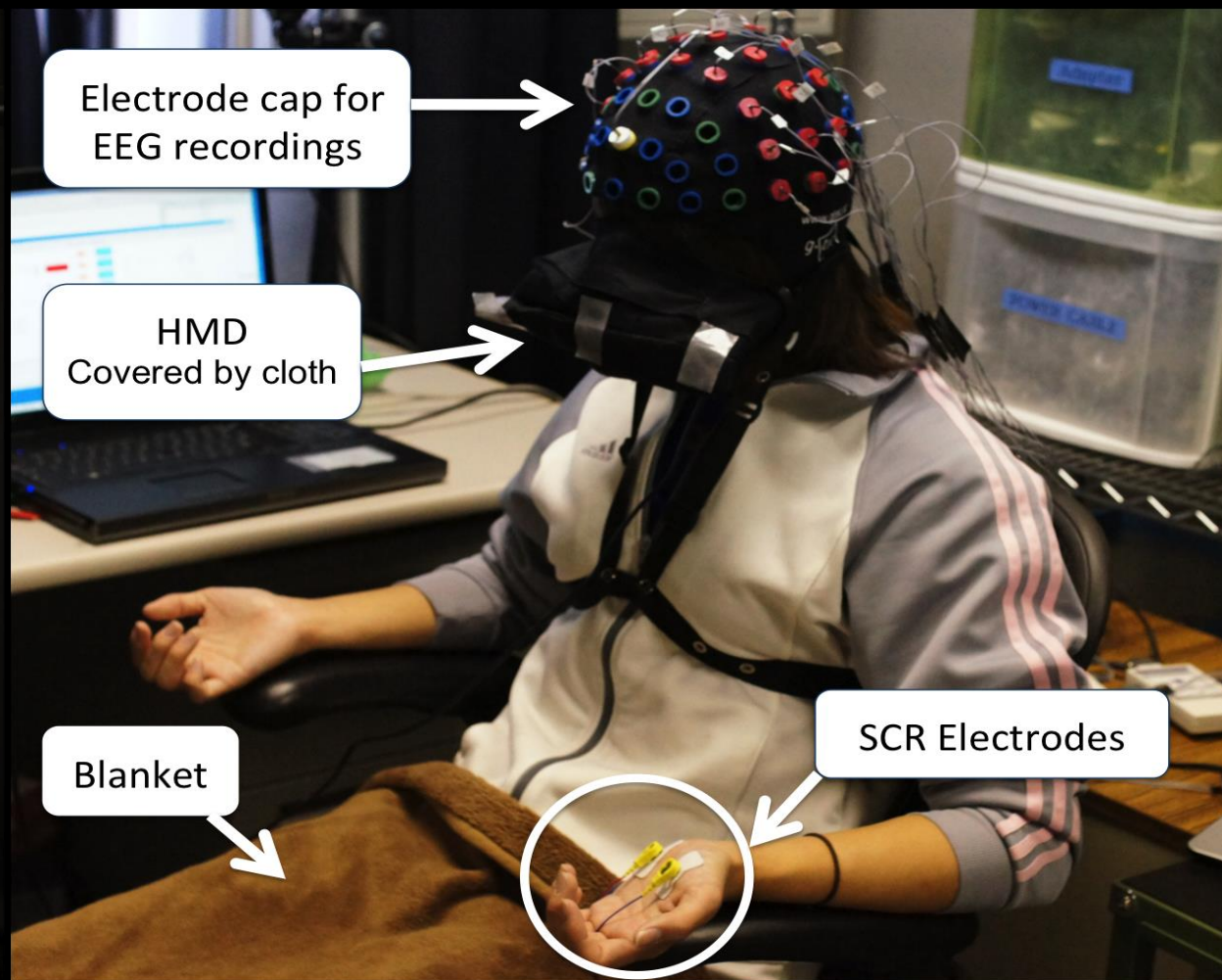
**Feeling
the sensation of touch**

Internet



Operator

Control by a brain machine interface



After 20 years

Challenges for autonomous conversational androids



Autonomous conversational android



Internet



Operator



Computer

Big-data approach

- **Collection of simple conversational patterns through the Internet for unlimited topics**
- **Chatbot and AI technologies such as Watson**

Story-based approach

- **Stories written by writers**
- **Complex conversation for limited topics**

Chat-oriented dialogue system with NTT



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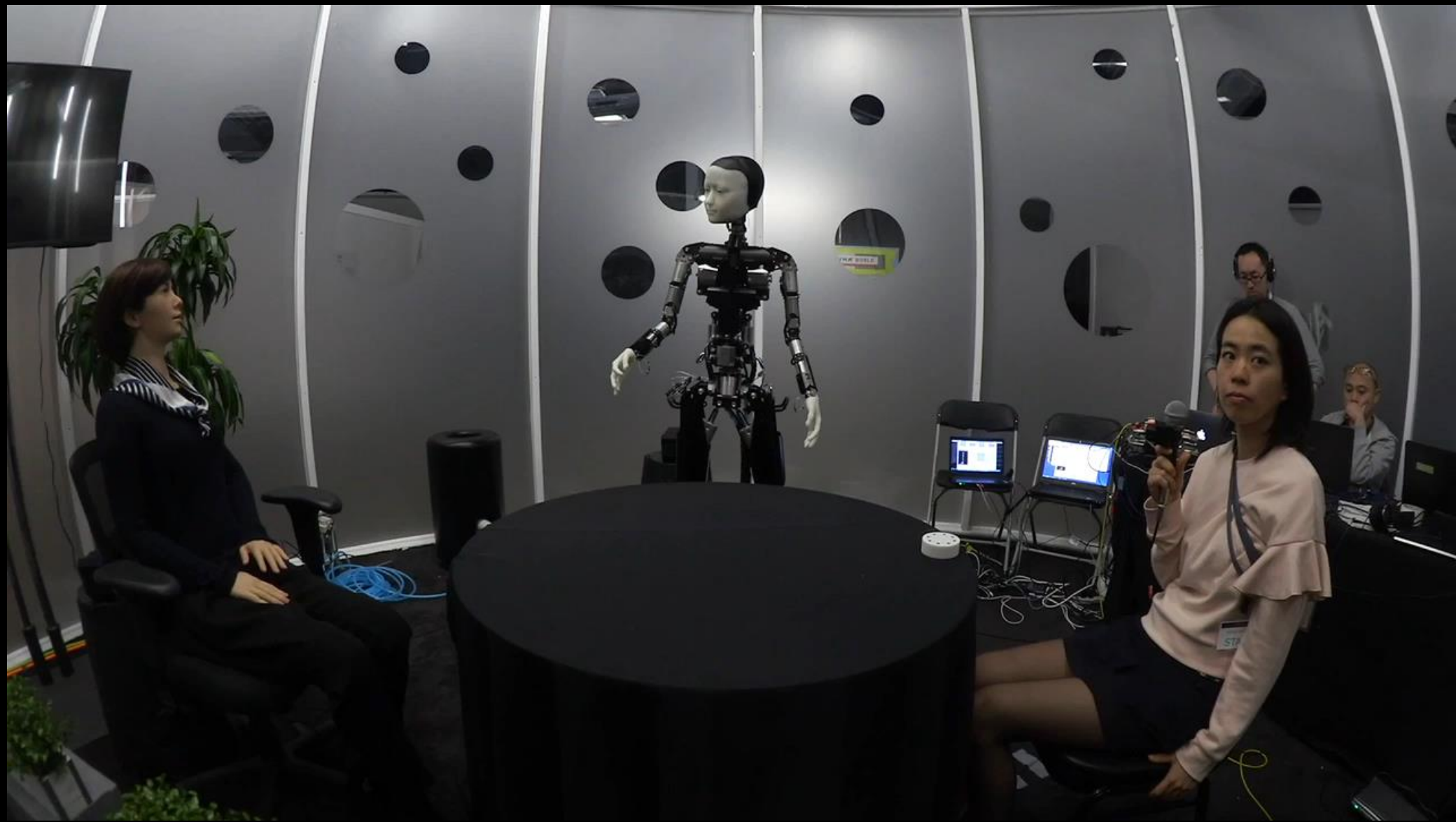


SXSW
MARCH 10-19
↳ 2017

Casual discussion dialogue system with NTT



Deep discussion dialogue system with NTT



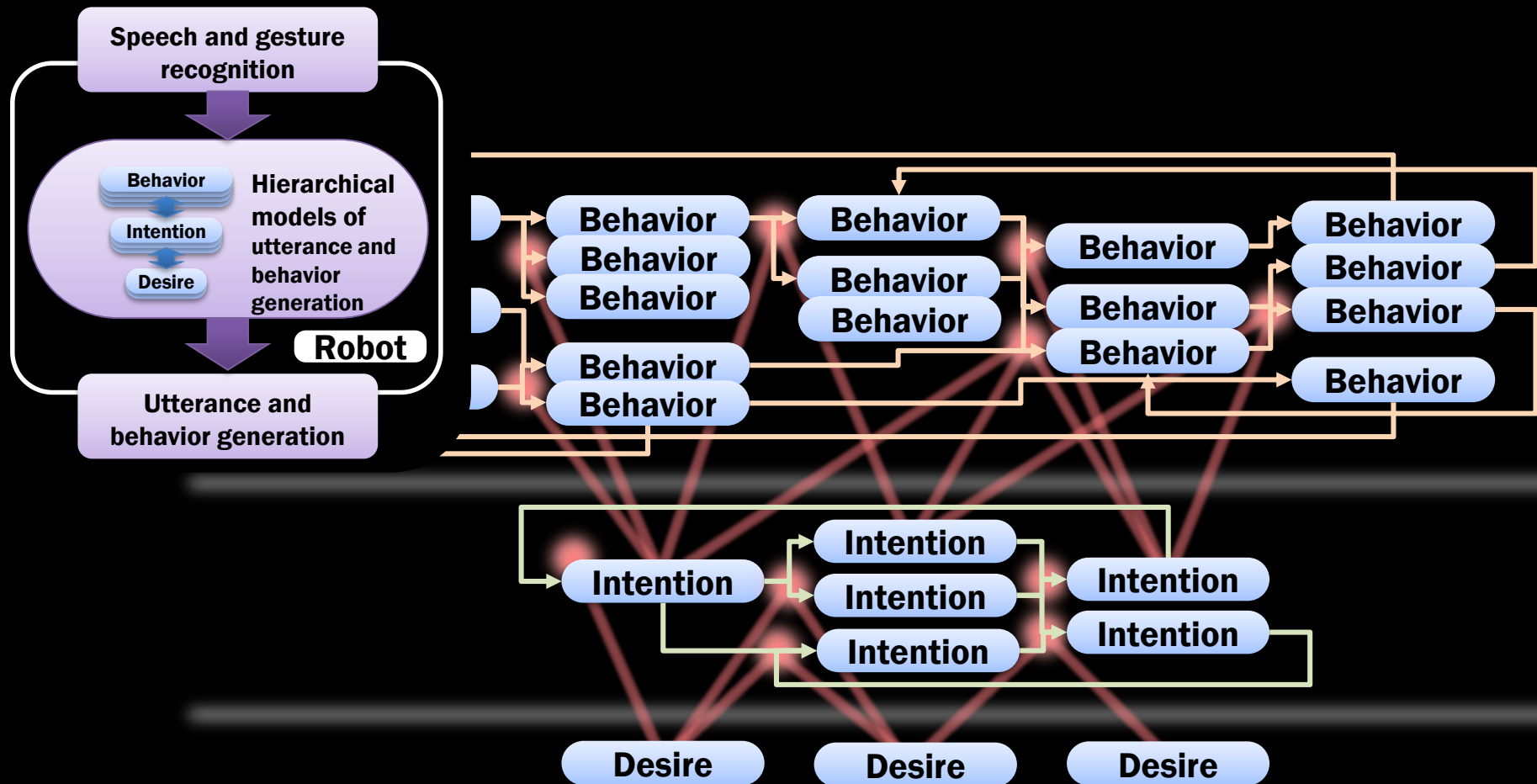
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Android that has intentions and desires



Interaction Composer

C:\pleiades\workspace\LS.H.I.K.I.\ic\snishiguchi\nishiguchi阪大demo\ShogoApplication * - インタクションコンポーザー

ファイル(F) 編集(E) 実行(R) ビュー(V) ヘルプ(H)

MainMulti.seq
 1.personUse.seq
 Private
 Error Recovery
 Negative
 HiKutsu.seq
 Positive
 Happy.seq
 DemoList.seq
 NextTopic.seq
 MisUnderstanding.seq
 Reset_ER_flags.seq
 Average_score.seq
 Random_con.seq
 Random_con_easys.seq
 Azuchi.seq
 No_match.seq
 filler_wait.seq
 Visitor
 ByeBye.seq
 Ask_him.seq
 Ask_Short.seq
 Ask_City/Ask_Something.seq
 SummerVacation.seq
 Byebye_visitor.seq
 WinterVacation.seq
 HowsYourWorkPlace.seq
 Tachnoon.seq
 AskJob.seq
 main_visitor.seq
 Trip.seq
 AskHobby.seq
 Colleagues
 ByeBye.seq
 Weather.seq
 Today.seq
 Greeting.seq
 Card/Dot.seq
 Hobby.seq
 Rolemod30.seq
 ShopApplication/design

WinterVacatio... | 日テレデモ用.seq | Tokitouseq | Ask_him.seq | Happyseq | Tomorrow.seq | SummerVacati... | Ask_City/AskGo... | HowsYourWor... | Byebye_visitor...

この年末年始は、何かご予定はありますか？ 帰省とか初詣とか。

おみくじ引いたりしますか？

私も一度、初詣行ってみないと思ってるんですよ

年末年始くらいじゃないと、なかなか遠くまで行く時間も取れないですよね1

お正月以外にも帰られることはあるんですか？ 1

yes/no winter

yes/no winter

お正月以外の映画の主題歌になってからまた

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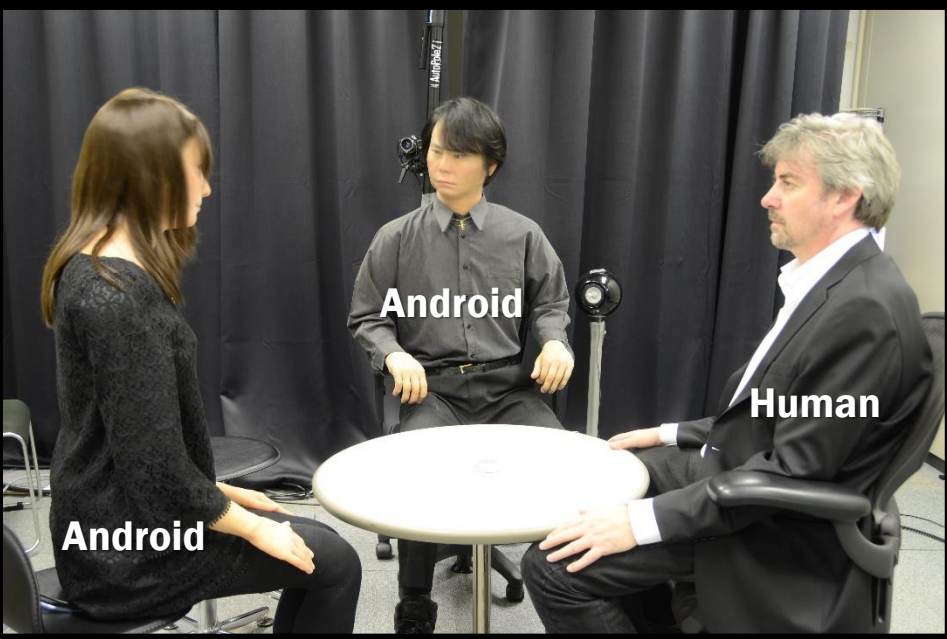
ERICA

The most advanced humanlike android









Robot society

