Options in developing a conversational assistant

Conversational Interaction Conference, March 2019
OVERVIEW

We develop custom conversational solutions with our clients, largely in the automotive space.

I describe the process and the options.

Stages of engagement with client:

- Generation of the vision
- Nomenclature and Education
- Options determination
- Prototype
- Implementation
WHO AM I AND WHO ARE WE?

CTO of SapientX

• Spent many years building VR worlds. SapientX has developed prototypes of speech interaction systems for several major manufacturers.
• Mitsubishi, Samsung, Magneti Marelli.
• Our NLU tech won the Loebner 4 times.
NOMENCLATURE AND EDUCATION

Important concepts to understand:

• ASR / STT / NLP
• NLU
  – Machine learning vs. fundamental meaning
  – Alternate approaches determining intent, entities
  – Noun, verb, object structures.
• TTS
• Avatar engine
OPTIONS - 1

- Operating system
- Set of intents
  - Control of xxx
  - On-line, off-line, hybrid modes
- Languages needed
  - ASR, TTS options
- Avatars
  - Applicability in contexts
  - Cultural sensitivity
  - Celebrity faces / voices
OPTIONS - 2

- NLU
  - Transitioning between modes
  - Chattiness
  - Personality
- Visual Cues
  - Of what was said
  - Of mode
  - Of sentiment
- Sentiment analysis
  - Impaired ability
  - Adjust chattiness
OPTIONS - 3

• Authentication
  • Text dependent vs. text independent
• Infotainment system
  • Navigation
• Windows and doors
• Interface to systems buses
PROTOTYPE

• Make part of the vision concrete
• Design is a Bayesian process
• We are all lousy guessers
• Build in stages.
  • Allows for early feedback
  • Allows for course corrections
  • Address the hard problems first, where appropriate.
IMPLEMENTATION

- Still done in stages
- Work out the hardware specs early
- Establish regular interfaces with clients
- Put debugging hooks in place
THANK YOU

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