

SAPIENT

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 SapienX

- Spent many years building VR worlds.

SapienX 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



Contact:

Maclen Marvit, CTO
201 Spear Street, Suite 1100
San Francisco, California
maclen@sapientx.com
www.sapientx.com

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