Spontaneous Speech Recognition for Human Communication Innovation

Our history

- Isolated syllable recognition
  Syllables only

- Dynamic Programming using whole-word models
  Isolated word recognition
  Small vocabulary

- Demi-syllable units
  Grammar-based continuous speech recognition
  Large vocabulary (around 1000 words)

- Statistical models and highly efficient search algorithm
  Automatic dictation
  Very large vocabulary (over 100,000 words)

- Very robust speech recognition for actual environments
  Spontaneous speech recognition

- Voice dial on cellular phone

- Used in markets and factories

- Voice typewriter prototype in collaboration with Kyoto University ('60)

- Voice typewriter declaration ('77)

- DP-100

- Tabi-Tsu SmartVoice

- VoiceDo

- ULTALKER

- VoiceOperator

- VoiceGraphy

- C&C declaration ('77)

- Support for call center
  SaaS-type support service for preparing minutes of meeting ('09)

NEC has pursued research and development in the field of speech recognition technology since 1960, where it has continuously maintained world-class technological capabilities and commercialized products over half a century.

- IEICE Achievement Award ('81)
- Prime Minister Invention Prize ('84)
- The world's first product of continuous speech recognition
  DP-100
- ASJ Technical Development Award ('95)
- ASJ Technical Development Award ('00)
- METI Research Achievement Award ('01)
- AJS Technical Development Award ('03)
- IEICE Performance Award ('04)
- AAMT Nagao Award ('05)
- METI Minister Award ('07)
- IPSJ Kiyasu Special Industrial Achievement Award ('09)

★_declaration ('77)
★_VOICEGRAPHY declaration ('09)
★_C&C declaration ('77)
★_Voice typewriter prototype in collaboration with Kyoto University ('60)
Speech Recognition Technology -- SaaS-type support service for preparing minutes of meeting

Service Features

- Support for preparing minutes of shareholder's meetings, earnings announcements, seminars, lectures, etc.
- Provide as SaaS-type service that enables users to introduce easily for speech recognition faculty

- 30,000 yen for one hour meeting

Technical features:

- Speaker independent very large vocabulary continuous speech recognition (over 100,000 words)
- High recognition accuracy for multiple speaker utterances by automatic turn-taking detection (80% recognition accuracy in average)
- Robust against noises appeared in meetings (chair movements, coughing, etc.)

Speech Recognition Technology -- SaaS-type support service for preparing minutes of meeting

- Record meeting speech with IC recorder
- Upload speech file
- Speech recognition
- Download recognition results
- Prepare minutes with recognition result editor
- Publication
Speech Recognition Technology -- Innovation needed to “realize an information society friendly to humans and the earth”

Future research

Technical prospects

- Gathering and value creation from various types of information
- Using multimedia information and data from various kinds of sensors
- Handling explosively increasing data with gathering and analyzing massive data while maintaining reliability and dependability
- Eliminating digital divide problems with multi-functional information devices with advanced technologies

Technical innovations

- Very robust speech recognition for actual environments

Very robust speech recognition for actual environments

- Recognition of simultaneous speech by multiple speakers under various acoustic conditions
- Active microphone detection using the positional relationship among multiple microphones
- Recognition of conversations including multiple topics
- Topic adaptation based on basis topic language models
- Various types of noise, echo, etc.

Technical prospects

- Speech recognition technology necessary to realize an information society friendly to humans and the earth

Computing with kindness for people and the earth

Future research