S4: Speech Translation and LVCSR

- 1 invited talk by Dr. Stephan Vogel (CMU)

  "Speech-Translation: From Domain-Limited to
  	Domain-Unlimited Translation Tasks"

- Accepted papers (20 papers)
  - Speech translation: 4 papers
  - Language ID: 2 papers
  - Cross-lingual, accented ASR aspects: 4 papers
  - Nonnative speech DB: 1 paper
  - General LVCSR: 9 papers
    - Keywords:
      WFST, 5 pass decoding, System combination,
      Arabic, Chinese, Parliamentary speeches

- Panel Discussion:
  "Problems and future directions of speech translation technology"

S4 Panel Discussion:
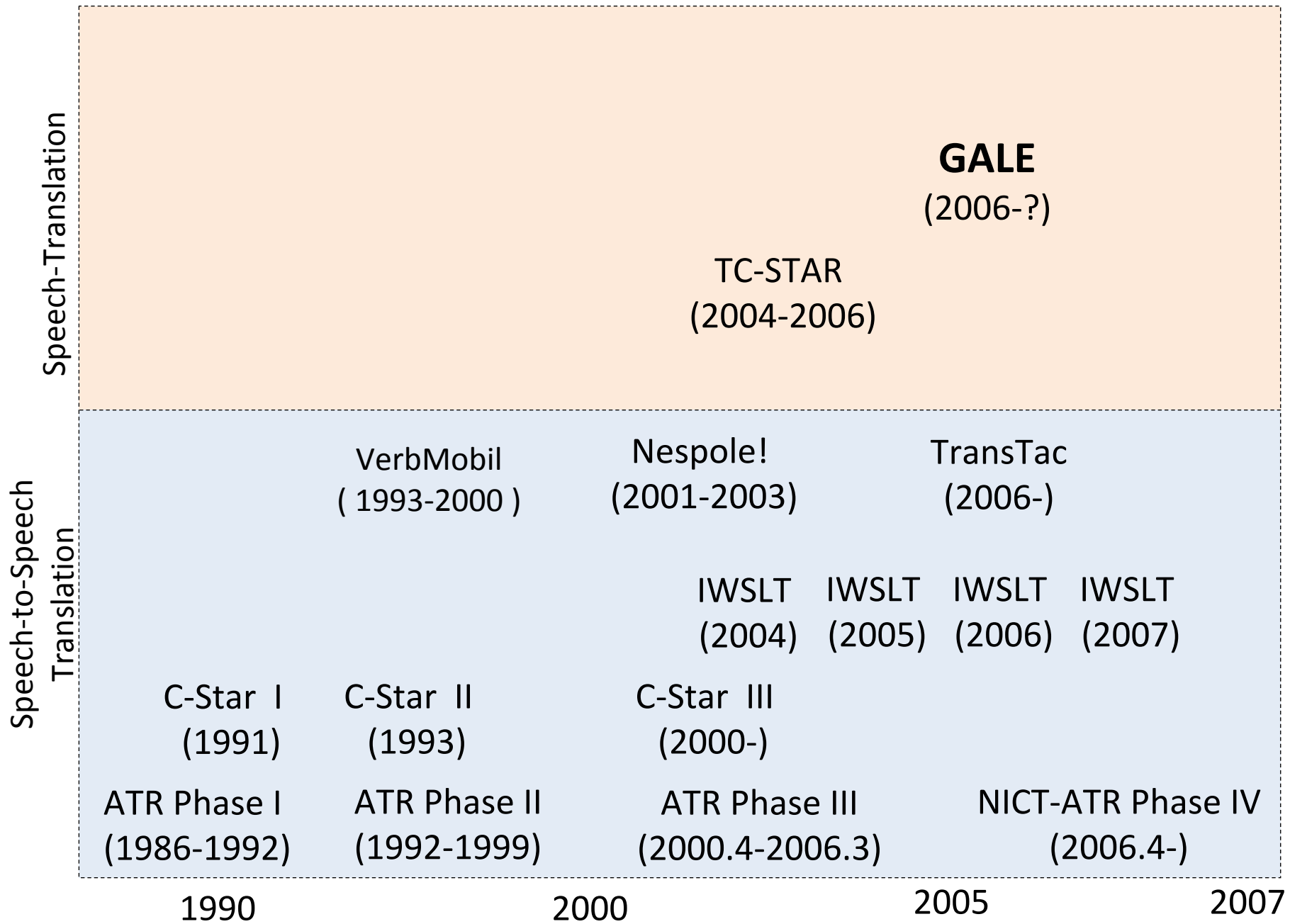## "Problems and Future Directions of Speech Translation Technology"

Rohit Prasad (BBN)
Chiori Hori (CMU/ATR-NICT)
Evgeny Matusov (RWTH Aachen)
George Saon (IBM)
Stephan Vogel (CMU)

Coordinator: Satoshi Nakamura (ATR-NICT)

IWSLT 2008 Venue
(co-located with AMTA 2008)

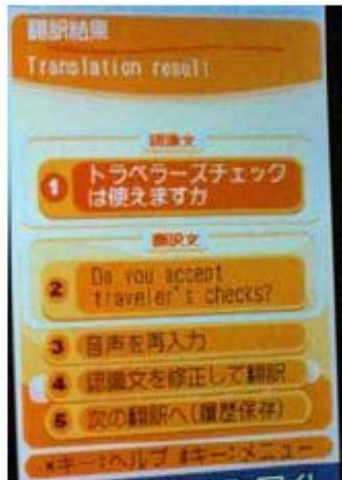*Hilton Prince Kuhio Hotel*
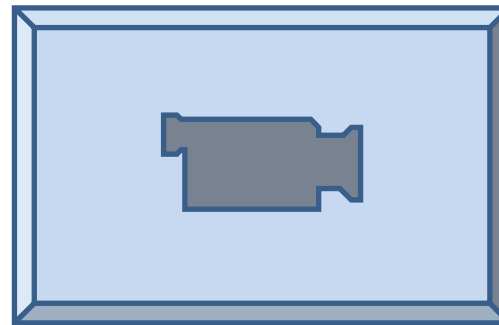2500 Kuhio Ave,
Honolulu, HI 96815

ATR Speech Translation System (2006.12)

Stand alone
Small PC

New Speech Translation System (2007.12)

携帯電話による自動翻訳サービス

System Design

DSR in Cell phone client

Noise Suppression → Feature Extraction → Compression
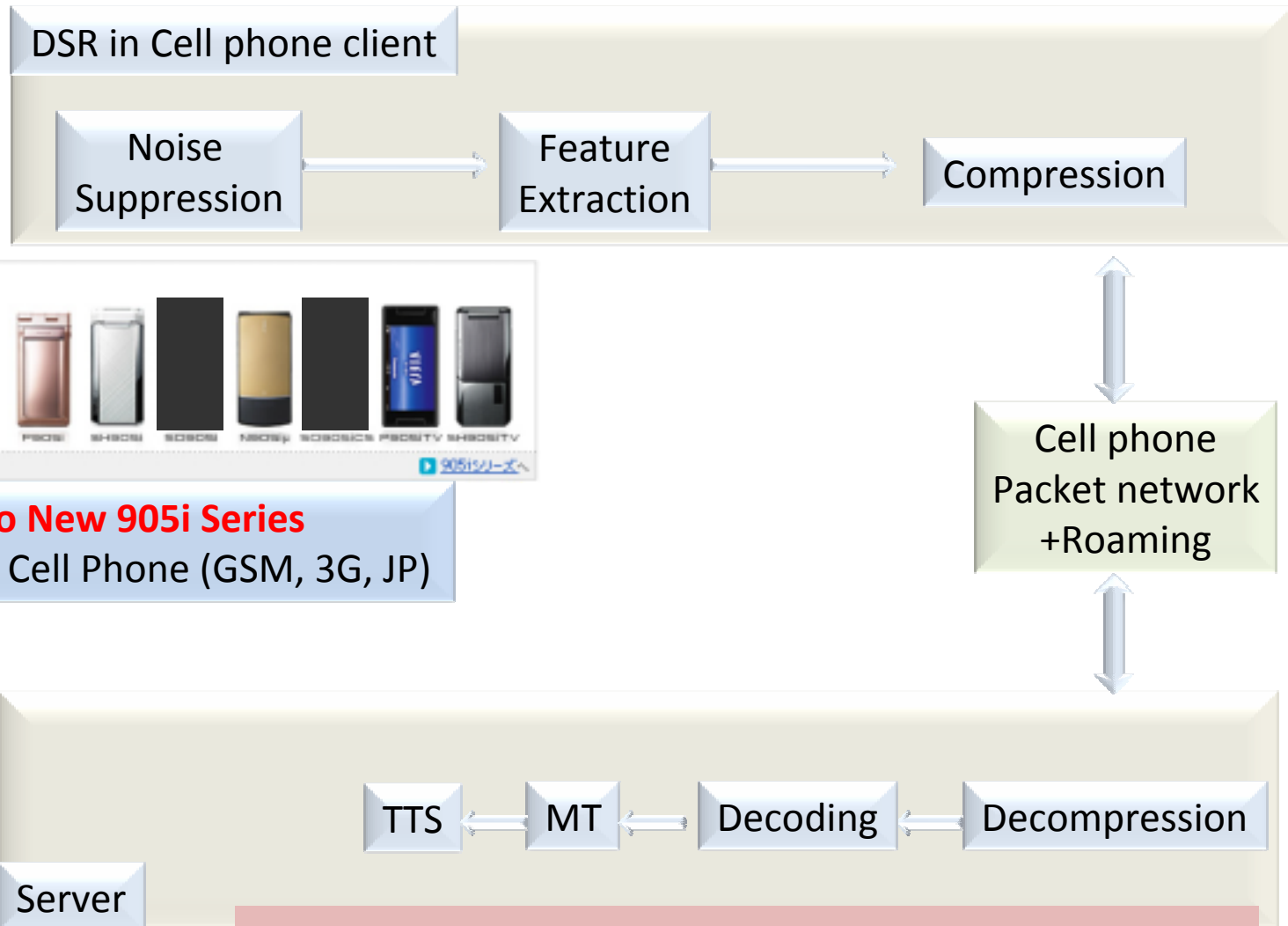
NTT Docomo New 905i Series
World Wide Cell Phone (GSM, 3G, JP)

Cell phone Packet network +Roaming

TTS ← MT ← Decoding ← Decompression

Server

Visit Demo session this evening!

Speech(-to-speech) Translation

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┌──────────────┐  ?  ┌──────────────┐  ?  ┌──────────────┐  ?
│ Multi-lingual│────▶│ Multi-lingual│────▶│ Multi-lingual│
│     ASR      │  ?  │      MT      │  ?  │     TTS      │
└──────────────┘     └──────────────┘     └──────────────┘
        │                    │
        │                    │            ┌──────────────┐  ?
        └────────────────────┴───────────▶│ Information  │
                                          │   Analysis   │  ?
                                          └──────────────┘
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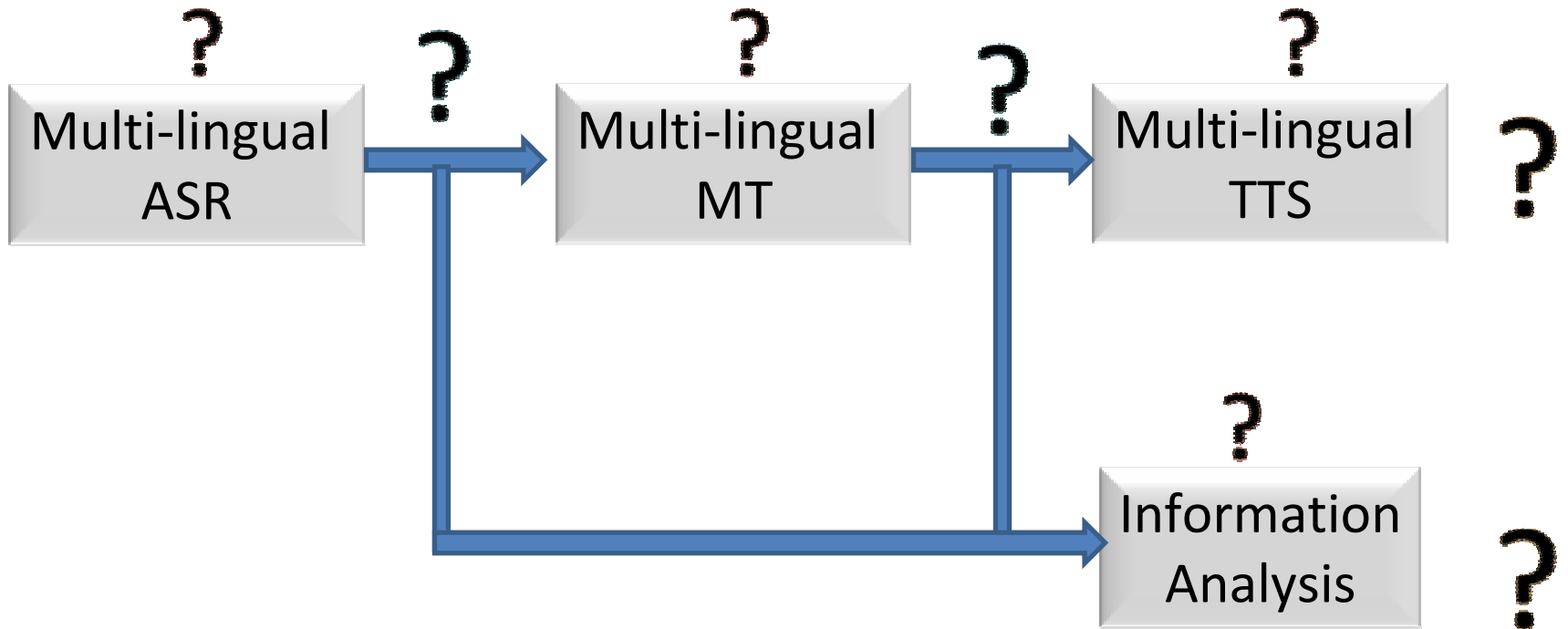
- Performances of modules
- Module Integration
- Performance Measurement
- Real World

Panelists' presentation

- **Rohit Prasad (BBN)**
- **Chiori Hori (CMU/ATR-NICT)**
- **Evgeny Matusov (RWTH Aachen)**
- **George Saon (IBM)**
- **Stephan Vogel (CMU)**

Challenges for Speech(-to-speech) Translation

Integration, Speech translation:

        Close coupling of ASR and SMT both in training and decoding.

        Consolidation

        More speech translation, Simultaneous speech translation

Measure:

        Better objective measure for speech translation

        Measures considering communicability.

MT:

        Integration of SMT and rule-based systems.

        Help of meaning and structure for SMT.

        SMT for the very long sentences.

        Disambiguation utilizing contexts and situations.

        Difference between human processing and current state-of-the art S2S.

Real application:

        Way to extend more languages.

        Named entity, OOV problems.

        Barrier to speech translation business.

Others:

        Merits and demerits of national projects.