

## Topic 8

# Speech Knowledge Integration

**Jerome Bellegarda**

**Jim Glass**

**Eric Fosler-Lussier**

# Two Aspects

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- **Speech Knowledge Integration**
  - Speech production, speech perception, auditory system, language acquisition, cognitive functions, etc.
  - --> Gather/incorporate bio-inspired information
- **Speech Knowledge Integration**
  - Information type: acoustic, linguistic, syntactic, semantic, pragmatic, etc.
  - --> Leverage multiple knowledge sources

# Snapshot

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- Where we Are
  - Integration infancy, but some promising forays
- How we Got There
  - Cross-disciplinary efforts
- Where we Need to Be
  - Sub-human --> human --> super-human?
- Key Challenge
  - How to consistently extract, represent & exploit information by nature fragmented & heterogeneous

# Snapshot (cont.)

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- Research Directions
  - “Integration layer” within existing framework vs. emergent integrative paradigm (like Chin’s, Fred’s)
- Measuring Progress
  - The curse of paradigm shift
- Evidence we Have Made Progress
  - The curse of (training data) abundance
- Expectations for the Future
  - The curse of marketing hype

# Speakers

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- Jim Glass
  - Spoken Language Systems Group, Computer Science & Artificial Intelligence Lab, MIT
  - Theme: “Speech science meets speech technology”
- Eric Fosler-Lussier
  - Computer & Information Science Dept., Ohio State University
  - Theme: “Combining multiple sources of evidence”