

# Torquing the "Norm" and the "Abnormal" User: Broader than What?

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# Fields

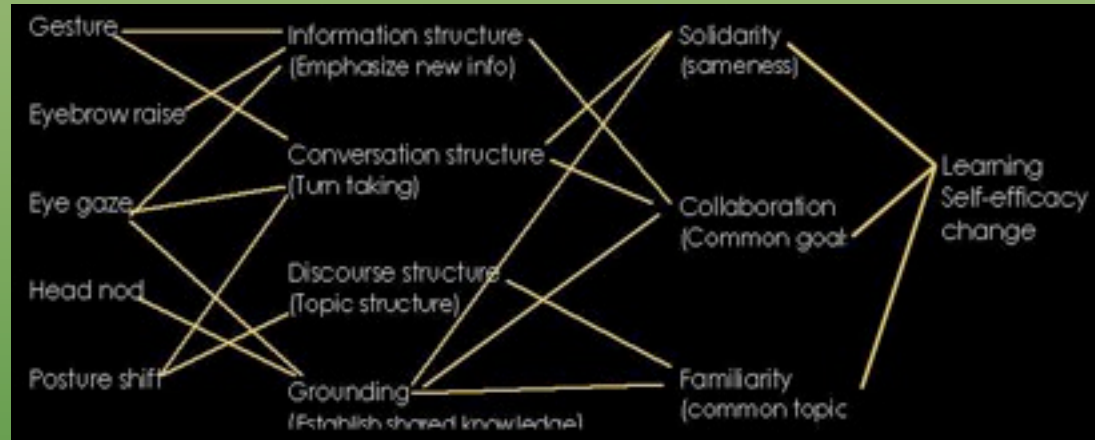
- Computational Linguistics
- Artificial Intelligence
- Human Figure Animation
- HCI
- Learning Science

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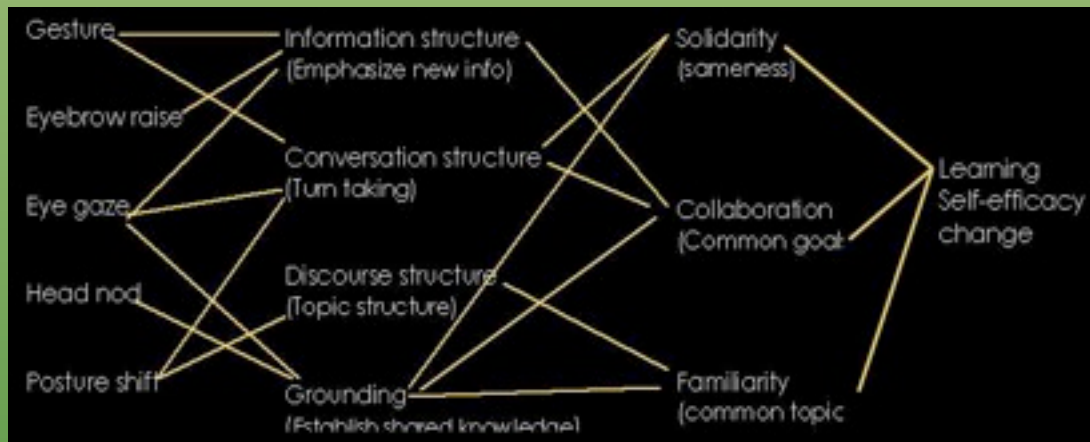
# Questions



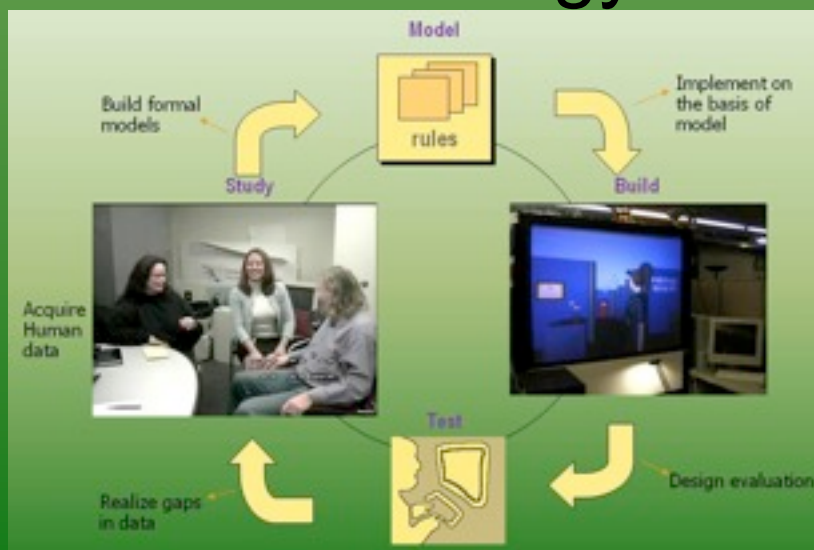
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# Questions



# Methodology





# Example: Ethnicity and Literacy

- 12% of African American 4<sup>th</sup> graders reached “proficient” on the National Assessment of Educational Progress; 61% did not reach ‘basic’. This effect worsens with age (NAEP, 2003).
- Use of dialect in the schools is negatively correlated with accuracy on the GORT-3 standardized reading test, *independent of SES*.
- Children from lower socioeconomic status increase in their use of AAVE in comparison to their middle-class peers who decrease their use of AAVE (Wyatt, 1991; Wyatt, 2001). This indicates that issues of culture and identity are at play.
- What’s going on, and can *peer* interfaces to educational content help?



# AAE & MAE in Science Talk



Bridge-Building Task

Classroom Task

	Building	Classroom	
Measure	Peer	Teacher	Student
MLU	3	7.98*	5.73*
DDM	0.164	0.042	0.084



Children use less AAE ,and more complex language, when talking to Alex in the classroom task

Evaluate, evaluate, evaluate



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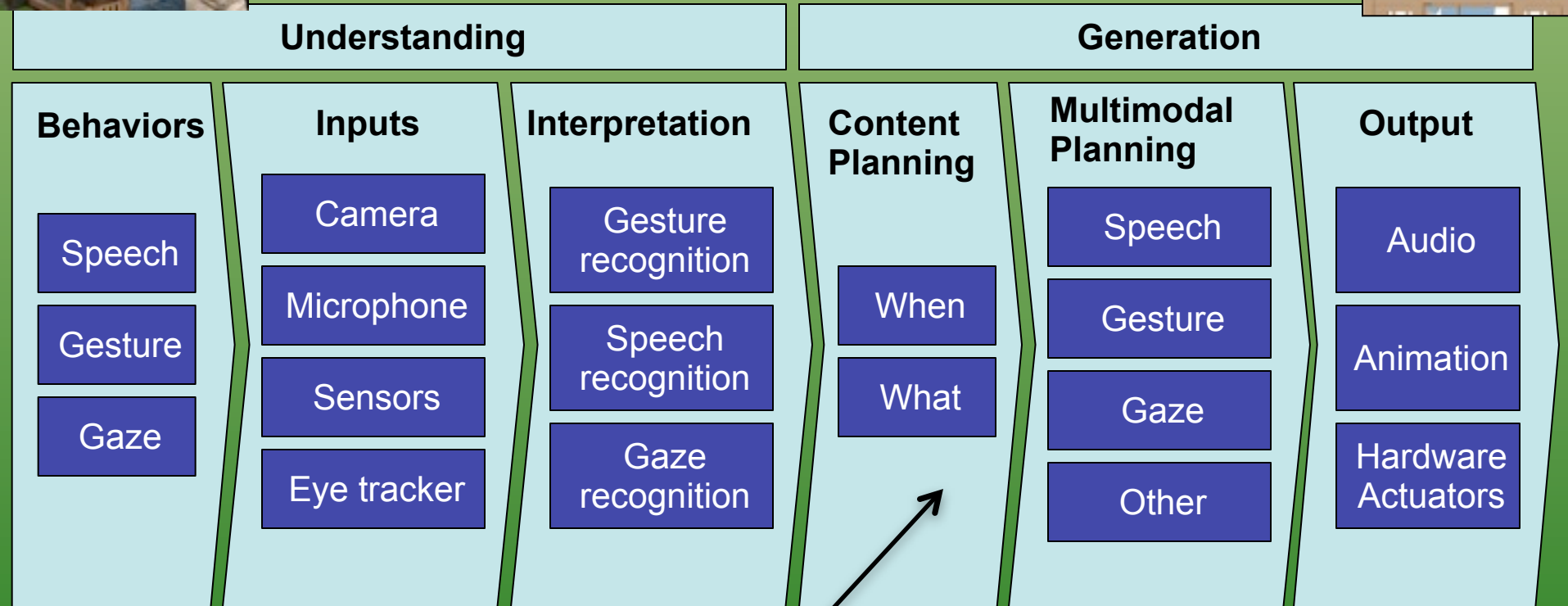
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# Probabilistic Modeling for Dialogue Systems



Markov Chain + Katz Back-Off Probabilistic Modeling of child-child corpus with Good Turing Smoothing using the SRILM



**For more information**  
<http://www.justinecassell.com/>  
<http://articulab.northwestern.edu>

**Thanks to  
NSF ROLE, NSF HCC, NSF ALT,**





# Example:

## Interface Design as Hypothesis Testing for Children with Autism

- Children with Autism
- Autism is characterized by a triad of impairments:
  - Reciprocal social interaction
  - Communication
  - Imagination
- Current approaches result in little change, and may disempower the ASD individual
- Can a virtual child help ASD individuals model the *other mind*

Dissertation work by Andrea Tartaro





# Children with Autism Controlling & Authoring Virtual Peers



- Children are more likely to take the perspective of a virtual peer than a real peer.
- *Transfer effect*: children are more likely to take perspective of other real child appropriately after using AVP



# Children with Autism

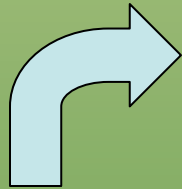
## Controlling & Authoring Virtual Peers



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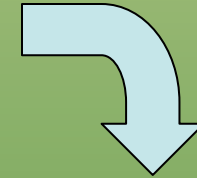


# End-user Programming



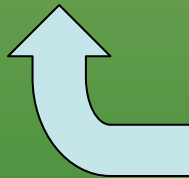
### SELECT BUTTONS

Hi, I'm Sam      What do you have?      New



### RECORD TURN

play      stop playing      record



### CREATE & LINK PANELS

Start      Add to the story      Ask a Question      Give Feedback      Fix      Finish

Hi, I'm Sam

A black microphone icon with sound waves, indicating audio input functionality.