

Analyzing Learning with Speech Analytics and Computer Vision Methods

Techniques, Principles, and Ethics

ICLS 2020 Pre-Conference Workshop

June 20th, 2020

<https://tca2.education.illinois.edu/icls-2020-workshop>

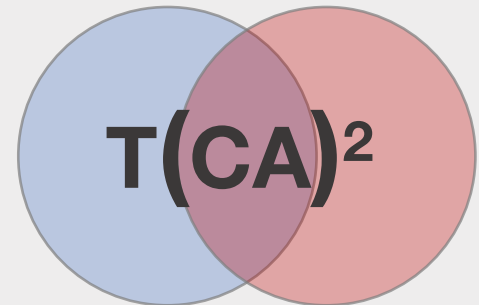
Elizabeth Dyer, MTSU

Stina Krist, UIUC

Nigel Bosch, UIUC

Cynthia D'Angelo, UIUC

Josh Rosenberg, University of Tennessee



Logistics, Technology, & Norms

If you have technology issues:

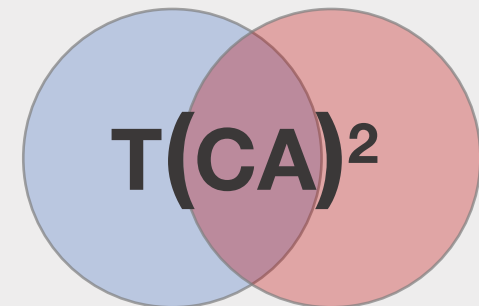
- Chat feature in Zoom (*Josh will monitor & help*)
- Email: jmrosenberg@utk.edu
- Whatsapp/Phone:

Stay muted when not speaking

Resources on workshop website:

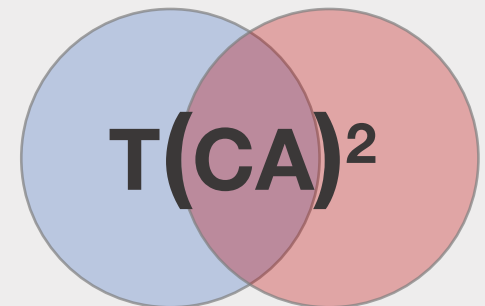
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Google Doc: substantive conversation	Zoom Chat: immediate attention
Sharing resources or ideas Questions for Q&A	Technology issues Anything unclear Backchannel conversations



Workshop Goals

1. Become familiar with existing computational methods for audiovisual data
2. Understand data collection principles that impact the success of computational methods
3. Conceptualize innovative research studies that integrate computational & qualitative analysis
4. Build community among researchers interested in using computational methods with audiovisual data of learning



Workshop Agenda

Introductions

Mini-lecture: Existing Computational Techniques for Audiovisual Data Analysis

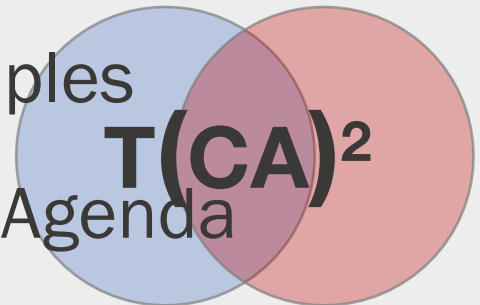
Breakout Groups: Radical Innovation of Research Questions

~Break~

Mini-lecture: Audiovisual Data Collection Principles

Breakout Groups: Revise Research Questions based on Principles

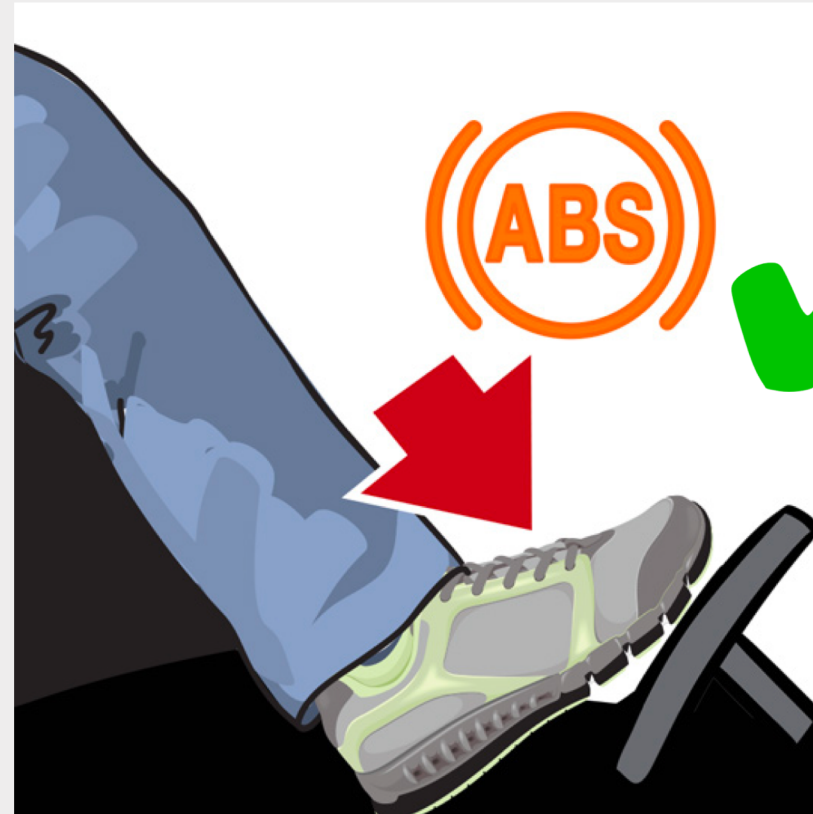
Q&A and Synthesis: Constructing a Methodological Research Agenda



Adaptive Assistance: Our Perspective on Computational Analysis

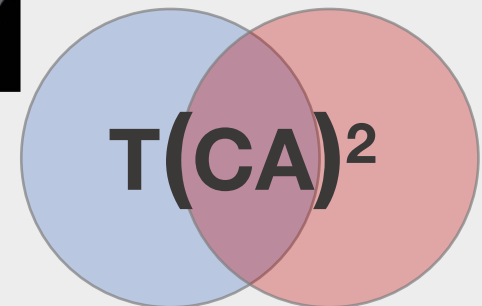


<https://www.ericsson.com/en/blog/2020/1/self-driving-car-passenger-experience>



<https://mycardoeswhat.org/safety-features/anti-lock-braking-system/>

D'Angelo et al., 2020

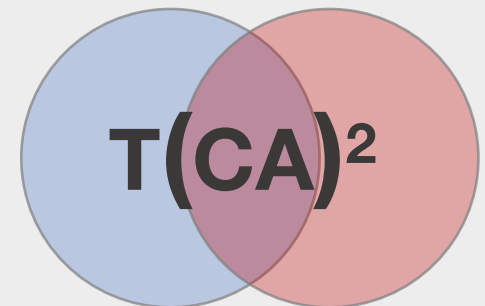


Adaptive Assistance: Our Perspective on Computational Analysis

Computational methods are most powerful when they are integrated with human-focused analytical methods (e.g. qualitative methods), rather than replace humans in the analytical process

How can we combine computational and human methods to analyze audiovisual data to answer meaningful educational research questions in ways that provide adaptive assistance to human analysts?

D'Angelo et al., 2020

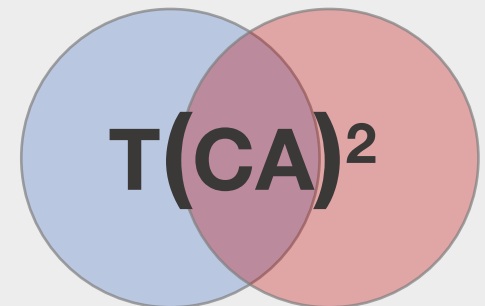


Ethical Considerations

Innovations in computational methods (artificial intelligence, machine learning, computer vision, speech analytics) have raised important ethical questions related to privacy, surveillance, and oppression (e.g., Noble, 2018)

What (possibly new) ethical questions and concerns are important when using innovative computational methods on audiovisual data of learning?

What can researchers do during the analytical process to increase awareness of and mitigate the potential negative impacts of their work on privacy, surveillance, and oppression?



Introductions

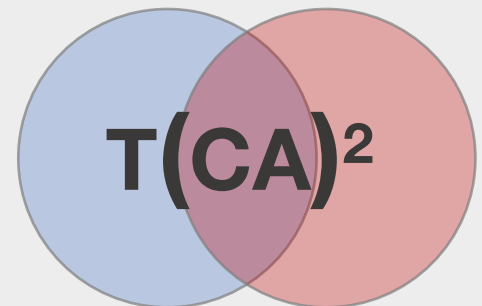
Keep these slides for reference!

Take note of people you'd like to talk more with, ask follow-up questions, etc.

Comment and introduce yourself on each others' slides!

Each slide has a pre-timed 30 seconds

Unmute yourself the slide before yours!



Guiding Questions for Mini-Sessions

How does this spark new ideas for things you want to study or investigate?
(Start to make connections between tools and RQs)

How do these considerations impact your plans/workflow for data collection, processing, etc.?

Use google doc for questions, and/or to share other tools or advice

