AI-augmented methods can characterize and foster effective teamwork in computing and engineering education

… but human in the loop is key

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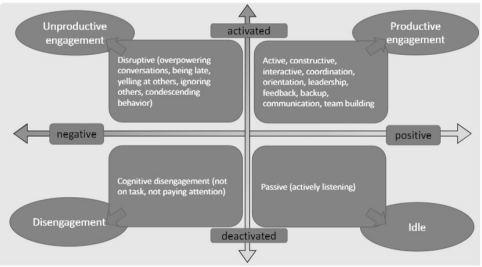
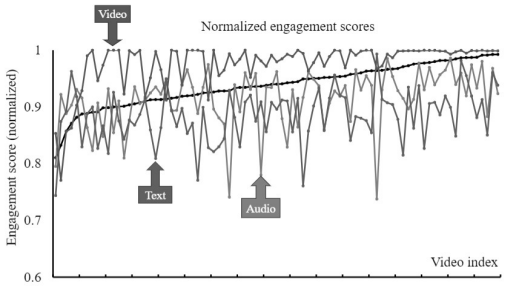
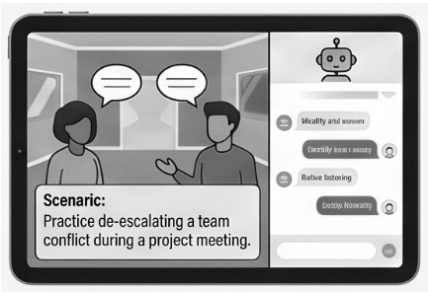
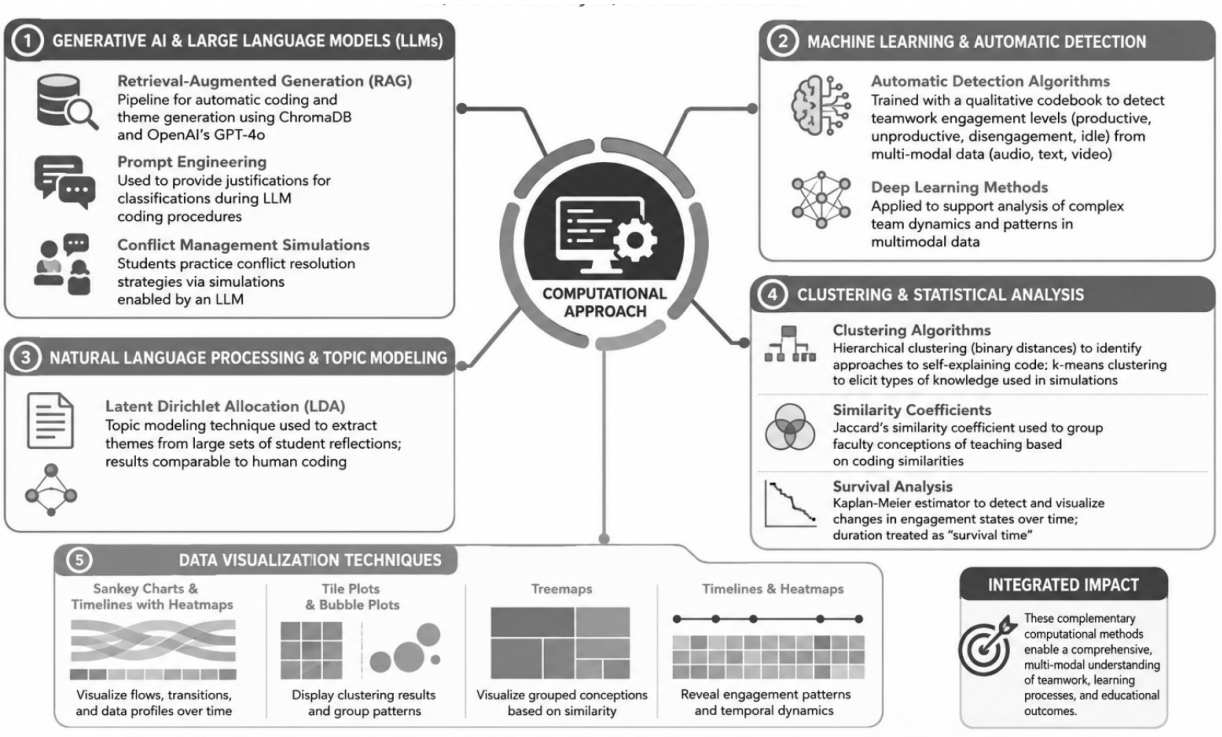
[#2219271: An AI-Augmented Phenomenographic Approach to Conceptualizing Undergraduate Students' Experiences of Intercultural Team Cognition in STEM (https://www.nsf.gov/awardsearch/show-award?AWD_ID=2219271)](https://www.nsf.gov/awardsearch/show-award?AWD_ID=2219271)







Characterization of engagement → Automated detection algorithms → LLM-based teamwork training



Outcomes:

- An AI-augmented qualitative methodology
- A special issue on the use of Gen-AI in research workflows
- A graduate course on computing methods in qualitative analysis
- Improved teamwork pedagogy in the context of large lectures

Take-home finding:

Social interdependence emerges when students are supported in developing social skills, intercultural competence, and awareness of team dynamics.

Challenge overcome:

(1) Adaptation to the fast-evolving technological advances; (2) Handling multiple and complex datasets; (3) Ensuring rigor in the research while working with LLMs.

Selected references:

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