



# Learning Analytics at the Residential University

Motivated by the classroom experience

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# Predicting Academic Success of Students (PASS)

- High Level Goal: Build a next generation educational predictive modeling engine that incorporates data from:
  1. Static factors (SAT, ACT, Gender, Admissions, High School, Big5, Goals, etc.)
  2. Partial Assessment (grades earned throughout the semester)
  3. Engagement measures (clickstream analysis with tools like Canvas, Problem Roulette, Clickers, LectureTools, etc.)
- Intent is to use this to inform other tools in the Michigan digital educational ecosystem
  - E.g. better content/peer recommender systems, early warning systems, etc.
- A portion of the project is to apply infovis to self-regulated learning (SRL)

# Michigan Educational Text Analysis (META)

- High Level Goal: Wrap educational discourse and NLP technologies with a services layer so educational researchers can easily use these techniques
  - Classification of documents (essays, discussion forums, tweets, short writing)
  - Clustering of documents, and topic modeling
- Two demonstration applications
  1. Understanding student qualitative feedback (course evaluations)
  2. Large STEM class writing prompts and instructor interfaces
- Enable active learning pedagogies at scale:
  - (~~Think~~) Write → Pair → Share;
  - Leverage diversity in the classroom

# Awareness in Teaching and Learning Academic Spaces (ATLAS)

- How can...
  - ...educational data science impact our teaching and learning spaces?
  - ...digital traces be surfaces to instructors to help them gain insight in an ambient (vs. studied) manner?
  - ...situated visualizations support teaching and learning about teaching in higher education?
- Bringing in fine art, visual arts, architecture, and design into the learning analytics space to impact data-driven decision making in higher education.

# Opportunities for the Challenge Initiative

- For Michigan to lead in classroom-based learning analytics (real-time)
  - This is (one of) our institutional strong points!
- To create computational models of students which are holistic
  - Not just reflective policy analytics from SIS, but integrative across institutional (and non-institutional) datasets
- To leverage design and development in educational data science