Week 8 Video 2

Discovery with Models:
Case Study
Case Study

An Example of DWM in Relationship Mining
Goal

- Try to understand which attributes of a medical school candidate, at the time of application to medical school

- Are predictive of successful participation in the emerging community of practice during medical school

- Towards evaluating medical school applicants for modern medicine where communication and community participation are key
How to measure?

- Not entirely clear how to measure participation in community

- Idea
  - Multiple measures of student participation in discussion forums within medical school LMS
Several measures
(and their hypothesized meaning)

- Nodal degree – number of relationships to other students
- Closeness – distance in communication to all other students
- Betweenness – students that connect other students
- Eigenvector centrality – an individual student’s contribution to the community
Data about students at time of admission

- Prior course grades (GPA)
- Standardized exam score (GAMSAT)
- Portfolio
- Interview
  - Set of rigorous mini-interviews with standardized questions
  - Questions assess critical thinking, decision making, communication skills, leadership, knowledge of health care
Results

- **Social Network Measures and GPA**
  - No significant correlations

- **Social Network Measures and GAMSAT**
  - No significant correlations

- **Social Network Measures and Portfolio**
  - No significant correlations, except in 1 of 4 subpopulations
Results

- Social Network Measures and Interviews
  - Closeness: $r = 0.311$
  - Eigenvector: $r = 0.152$
More Results: Admissions Criteria and Class Grades during Medical School

- Prior GPA: $r = 0.172$
- GAMSAT: $r = 0.188$
- Interviews: $r = 0.253$
Conclusion

- Interviews are better predictor of both grades and participation in medical school social network than other measures

- Keep interviews in the medical school admissions process
Interesting Point

- Using measures that can be distilled from data quickly

- Research questions can be answered that were never considered by the original developers of those measures

- Discovery with Models at its bests
Next lecture

- Text Mining