

Predictive Markers of Engineering Graduate Admissions Behaviour

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ABSTRACT

In the area of Engineering Schools, some would describe the admissions process of Masters and PhD programs as something that would require a crystal ball to get right. Well that most certainly might help, there is evidence that Engineering Departments follow changes that can be predicated, and improved in their admissions decision. Here, we will outline an approach to understanding and enhancing graduate admissions decisions based on predictive markers.

CCS CONCEPTS

Applied computing→Education→Collaborative learning
Information systems→Data management systems→
Database design and models→Relational database model

KEYWORDS

Education, Computer Science, Data Mining, Predictive, Algorithm, Markers, Graduate, Success

INTRODUCTION

Decades of research has been done in Health Science Schools^{[1][2]} on what makes potential students and applicants successful. There markers rigorously mark the various weigh that has, could, and should be given to both quantitative and qualitative criteria upon which students present as part of their application to these schools. In this regard, certain studies have been successful in parsing out the role of various criteria in the selection process. Perhaps surprisingly, no similar papers exist in the world of Graduate Engineering Programs.

BACKGROUND

The topics covered are related primarily to data mining techniques, including SQL queries, data mutation, visualization techniques, and decision tree algorithms. The data is given in the expected table format, with columns for various datam like “GPA”, “Accepted”, “Enrolled”, and “GRE”^[3], and can be piped directly into a program that will provide feedback on admissions decisions.

OVERVIEW / METHODS / RESULTS

We used 2 different applications in order to gain a fuller picture of graduate admissions behaviour - R Studio and Weka. As a data mining platform, R-Studio provided insight on more general differences, such as how different graduate programs in the School of Engineering rank various admission criteria, such as GRE scores and GPA. It also provided context on certain cutoffs - certain scores that would guarantee admission or guarantee enrollment of accepted students. Then, using WEKA’s J48 Algorithm, we can use data mining techniques to create a decision tree for a full ruleset of admissions.

CONTRIBUTIONS

Information, Computer Science Policy, CS Education is a well-researched topic, though no conclusive results exist on these 2 subjects: How graduate admissions programs make admissions decisions, and what marks student success in a masters and PhD program. The method by which this data is parsed is paramount to ensuring continued success and growth for Engineering graduate programs around the globe in their admissions decisions.

REFERENCES

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CONTEXT FOR REVIEWERS

The poster will contain the usual sections, including the Abstract, Problem, Background, Approach, Evaluation, and Conclusions. While the research is a matter of method, the results are based on University of Kansas empirical data. A handout may be available on what results might be expected. This topic is excellent for engagement, as understanding how a similar approach can benefit other graduate programs is quite compelling. The authors include the director of the Graduate Academic Services, with expertise in this field.