Mohit Surana

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Machine Learning, Computer Vision, NLP, Education

Seeking: **Internship, Summer 2018**

MS UMass CS, Fall 2017 – Present
BE PESIT CSE, 2013 – 2017

Intern at Center for Knowledge Communication, UMass
Past Software Engineering Internships at **Goldman Sachs** and **Intuit**

Assessment of Question Quality Using Bloom's Taxonomy

Problem

To assess the skills needed to answer questions by classifying them according to Bloom's Taxonomy
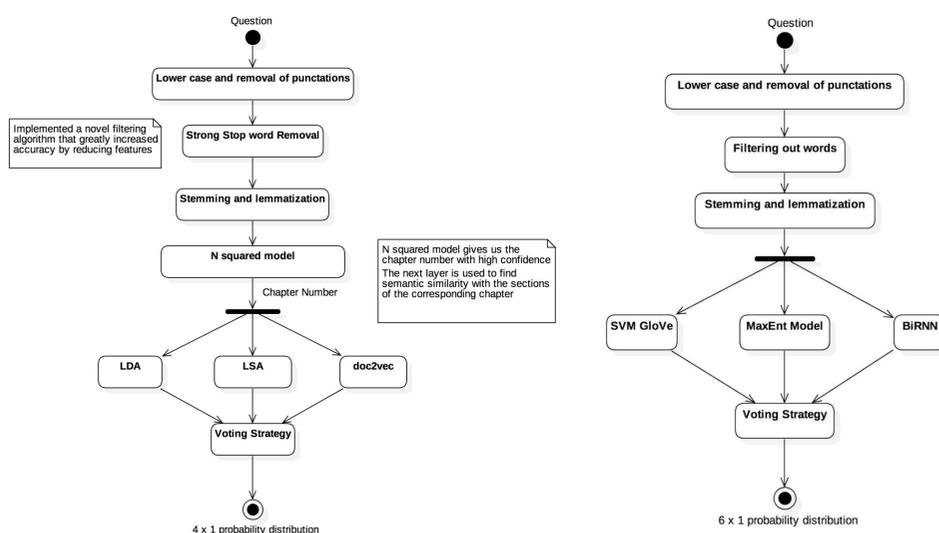

Solution

Past work has only targeted skill dimension

We've built a novel architecture with two models: one for knowledge classification and the other for skill classification

Approach relies on labelling of questions by subject experts

Courses

Fall 2017
- Computer Vision
- Machine Learning
- Systems for Data Science

Spring 2018 (intended)
- Adv. Natural Language Processing
- Probabilistic Graphical Models
- Artificial Intelligence

Applications

- Automating question paper setting
- Analysing the study patterns of students
- Pedagogic tool to gauge content delivery

Results

Generic architecture which can be extended to any other technical subject

- Achieved 90% accuracy in Skill dimension
- Achieved 60% accuracy in the Knowledge dimension
- Can determine question quality with reasonable confidence

We can tell if a question is tough or easy using our system (harder questions have higher score)

Factual Knowledge   Conceptual Knowledge   Procedural Knowledge
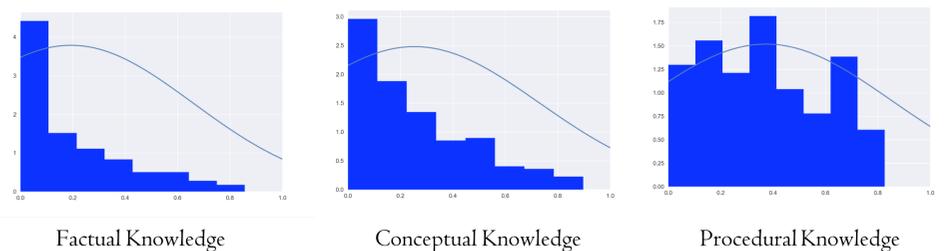
We applied our model to Algorithms and Operating Systems textbooks and exercises. In the future, the work can be extended to other subjects.

Other Projects

- Sentiment Analysis of Tweets to assess the performance of banks after the Demonetization scheme
- Audio clip classification of cricket commentary to detect events like sixes, fours and wickets with 86% accuracy

Ongoing:

- Improved Food Recognition using Textual data
- Eager Autoencoder training using Parallel Autoencoders
- Affect Recognition and Intervention in Intelligent Tutors (under Prof. Beverly Woolf)

Seeking...

Internships for Summer 2018 in the fields of:
- Machine Learning
- Data Science, or
- Computer Vision