CS401
Machine Learning & Neural Networks
HW3 - Unsupervised Learning
2020 – 2021

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1 Group list

I used K-Means for GOAL, DATA, METHODS, RESULTS, ISSUES, COMMENTS respectively and obtained their Topic words. Then I generalize their approximate contents by the Topic words and use them as the names of the classes.

1.1 Using Goal

1.1.1 Creating machine learning systems that save time

Topic Words: ai, using, use, learning, time, machine, create, system, goal

1.1.2 Predicting and improving health

Topic Words: predict, improve, early, eye, performance, reduce, alzheimer, mars, model, find

1.1.3 Image Processing

Topic Words: go, images, beat, create, play, could, human, data, new, languages

1.2 Using DATA

1.2.1 Facebook

Topic Words: past, facebook, us, patients, photos, collected, data, study, project, research

1.2.2 Game

Topic Words: database, game, data, images, used, zinc, taken, face, eye

1.2.3 Various

Topic Words: various, data, images, training, dataset, input, machine, learning, set, go

1.3 Using METHODS

1.3.1 Neural networks

Topic Words: models, artificial, convolutional, neural, facial, network, used, regression, recognition

1.3.2 Unsupervised learning

Topic Words: unsupervised, deep, natural, language, processing, learning, classification, mentioned, data, network

1.3.3 Supervised learning

Topic Words: supervised, learning, machine, network, reinforcement, used, neural, algorithm, different, image

1.4 Using RESULTS

1.4.1 Improved medical outcomes

Topic Words: percent, language, improvement, patients, images, best, less, algorithm, user, model

1.4.2 A system with an accuracy rate comparable to that of humans

Topic Words: accuracy, system, human, people, go, tests, capable, rate, identified, new

1.4.3 Get better results

Topic Words: results, better, able, machine, however, first, within, ai, new, predict

1.5 Using ISSUES

1.5.1 Team and ethical issues

Topic Words: issues, could, time, team, ethical, issue, system, images, training, problem

1.5.2 Model bias exists

Topic Words: model, good, result, large, possible, exists, bias, false, dataset, able

1.5.3 Public issues related to person

Topic Words: issues, n, person, use, problems, used, public, question, testing, model

1.6 Using COMMENTS

1.6.1 Machine learning is useful and cool

Topic Words: like, useful, cool, interesting, learning, find, new, specific, technology
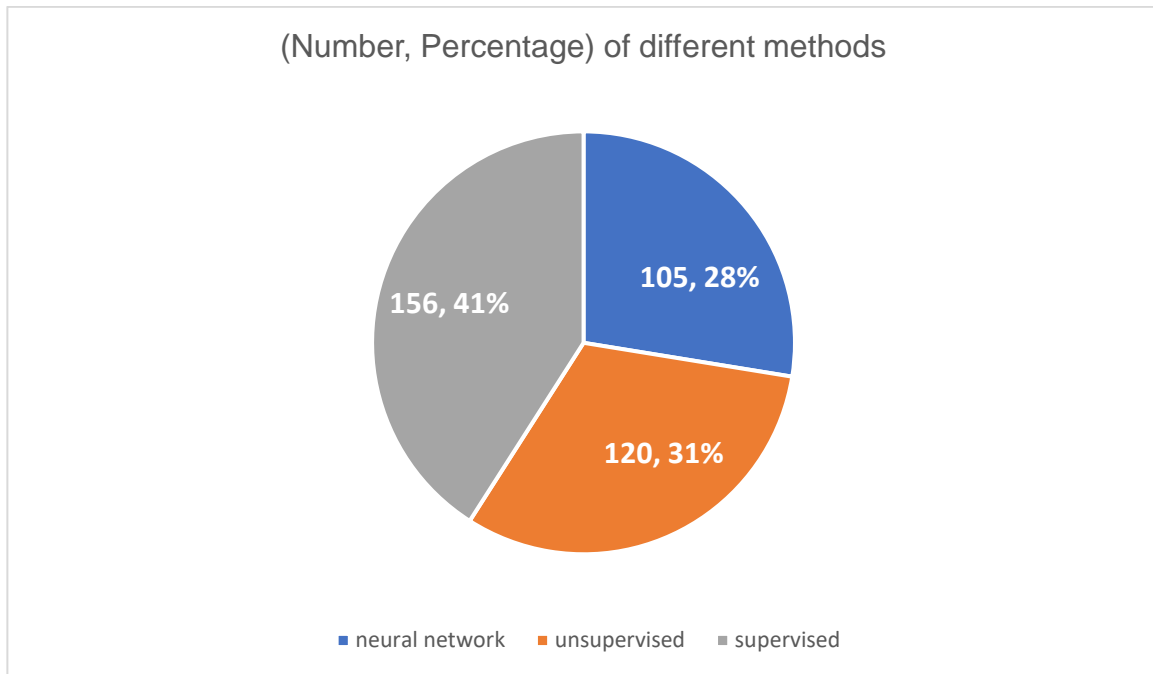
1.6.2 Future Systems

Topic Words: future, system, projects, model, could, field, google, quite, images, data

1.6.3 Humans and machine learning are inextricably linked

Topic Words: n, learning, machine, people, humans, study, ai, many, seems, always

2 Something I found in the data

2.1 Students prefer to learn about supervised methods.

(Number, Percentage) of different methods

- 105, 28%
- 120, 31%
- 156, 41%

■ neural network ■ unsupervised ■ supervised

2.2 Students prefer to learn how to use machine learning to create systems that can save time.

(Number, Percentage) of different goals

- 80, 21%
- 82, 21%
- 220, 58%

■ Creating machine learning systems that save time ■ Predicting and improving health
■ Image Processing
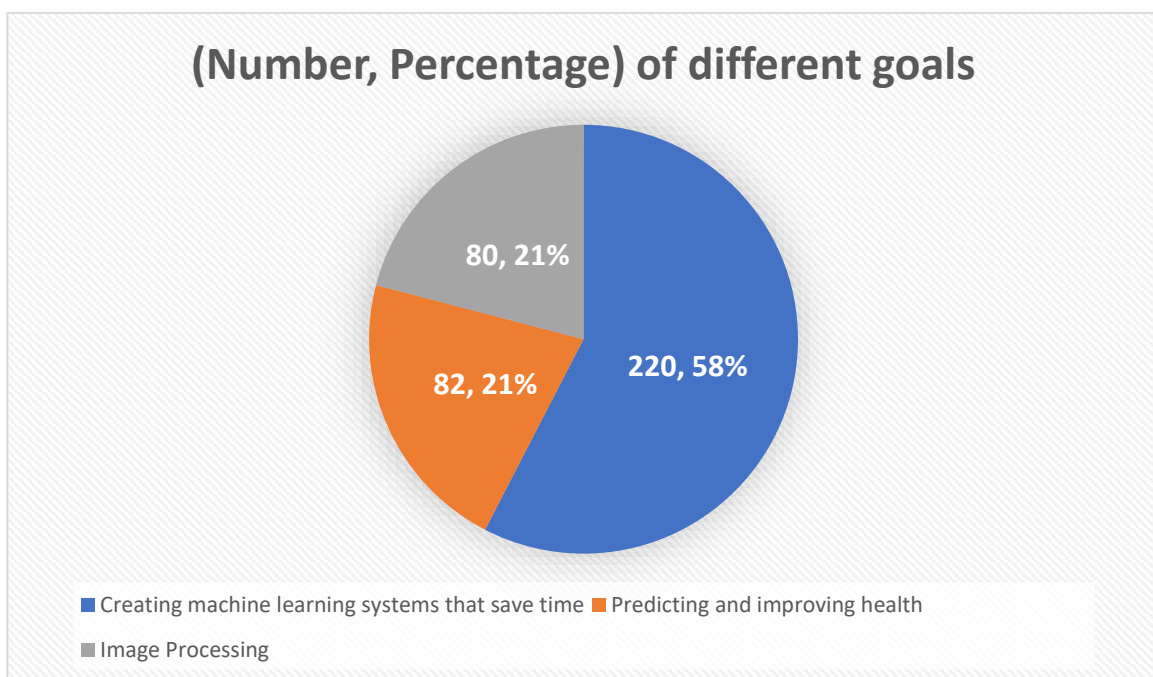
2.3 Students think that machine learning has many ethical and team issues.

Percentage of different issues

19%

10%

71%

■ Team and ethical issues   ■ Model bias exists   ■ Public issues related to person
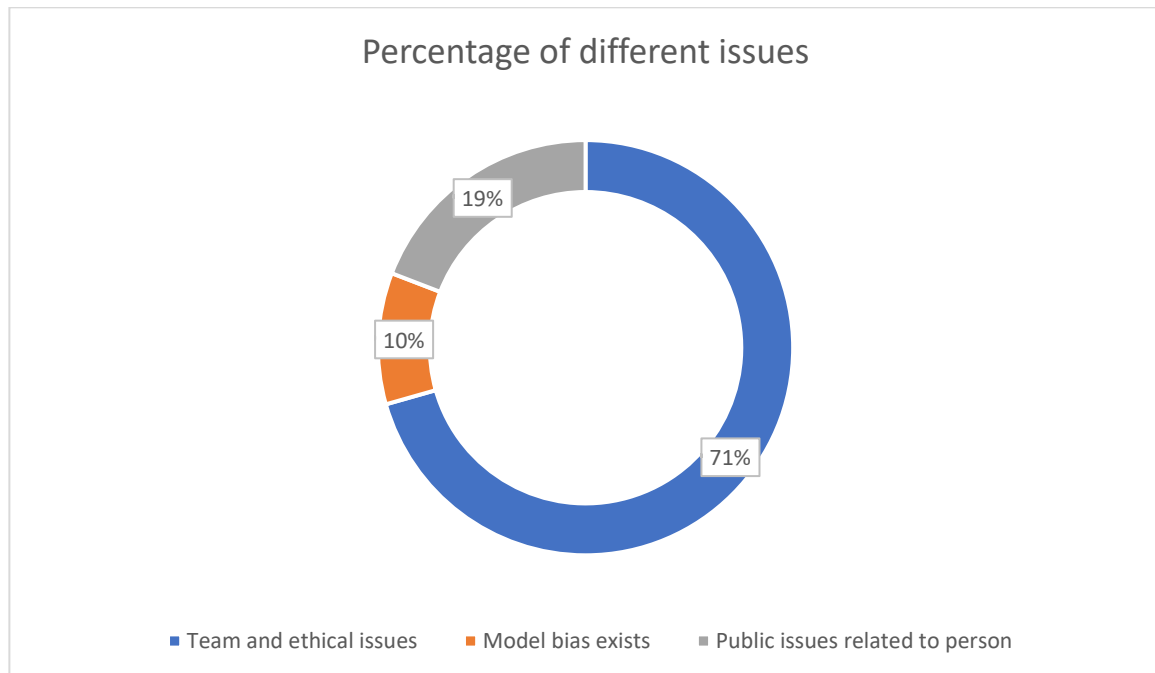
2.4 Students learned more about the application of machine learning in healthcare

Different results of machine learning

250		
200	222	
150		
100		85
50	74	
0		

Improved medical outcomes | A system with an accuracy rate comparable to that of humans | Get better results
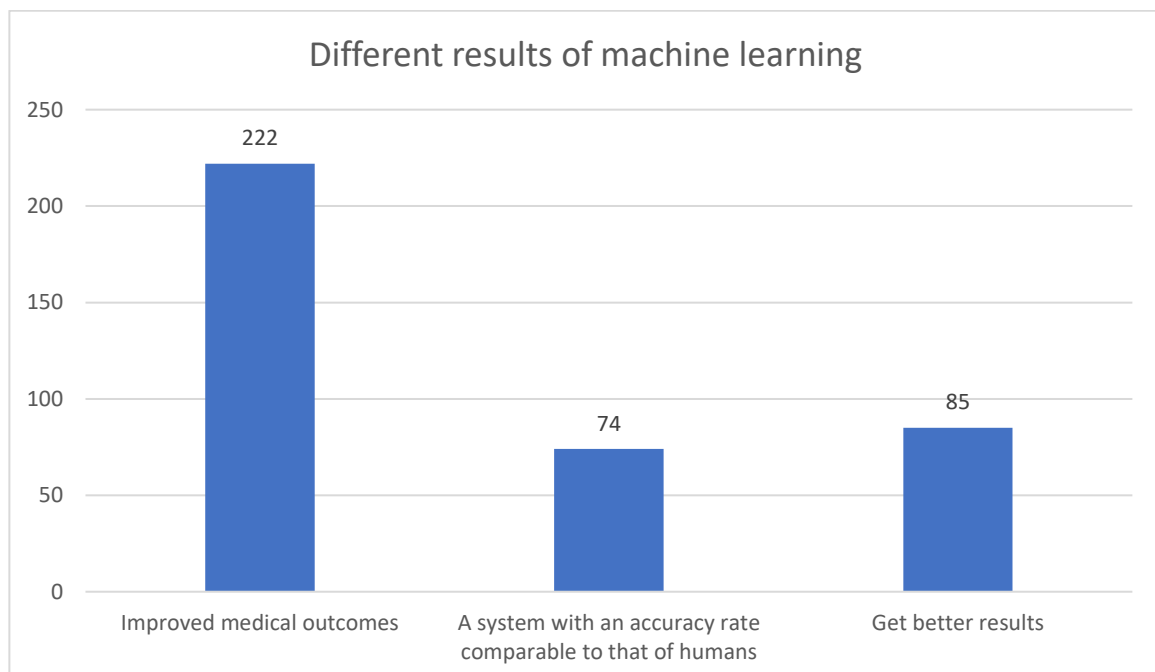
2.5 Neural networks methods are cool and useful

Percentage of different comments in each method

	Supervised	Unsupervised	Neural Networks
■ Machine learning is useful and cool	37.18%	45.00%	47.62%
■ Future Systems	23.72%	25.83%	26.67%
■ Humans and machine learning are inextricably linked	39.10%	29.17%	25.71%

■ Machine learning is useful and cool   ■ Future Systems   ■ Humans and machine learning are inextricably linked
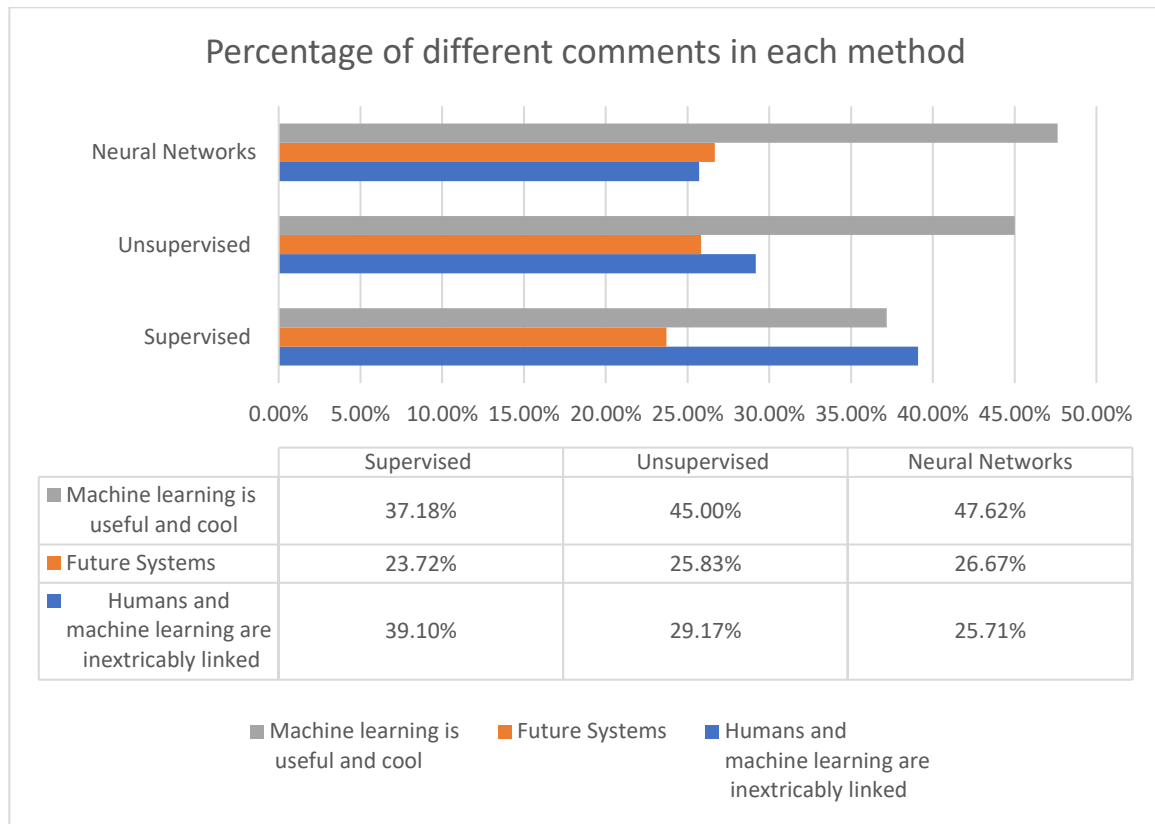
2.6 Supervised learning and humans are inextricably linked