

Ph.D Qualifier Exam Report

**Complex Question Answering: Unsupervised Learning Approaches and Experiments**

Presenter:

**Xiulong Yang**

Committee:

Dr.(Chair)

Dr.

Dr.

**Department of Computer Science**

**Georgia State University**

**Abstract**

The background.

In this work, two XXX algorithms will be investigated, including A and B. Experiments show that they are good.

**Key words:** Deep Learning, Machine Learning

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# Introduction

Over the past few years, the issues have raised some what.

In this work, two selected papers ”A” and ”B” presented two approaches.

The outline of the report is as follows: In Section II, we will review some related work of . In Section III, . The next method is then introduced in Section III. Finally,conclusions and future work in Section V and VI.

# Related Work

I guess this part is very important too.

# title

## subsection

a equation *p*(*y* = *c*|*x,w*) = *softmax*(*f*(*x*))

. The *w* is the parameters of a neural network, and *f* is the output of the model. So for each input image, we can get a probability vector *p*(*y* = *c*|*x,w*).

The authors evaluated the models on MNIST [4], CIFAR-10 [3], a diabetic retinopathy dataset [1] and ImageNet[2]. Shaded areas in the plots denote ± one standard deviation.

1. MNIST: The network architecture for MNIST, referred to as “S-CNN”
2. CIFAR-10: The authors experiment a CNN model Additionally they also evaluate with DenseNet-121
3. diabetic retinopathy dataset: Details for the inceptionV3 architecture are described in section 4.5.
4. ImageNet: ResNet-50[2] is used in the experiments. The network is trained for 100 epochs without data augmentation

Figure.1 is show below:

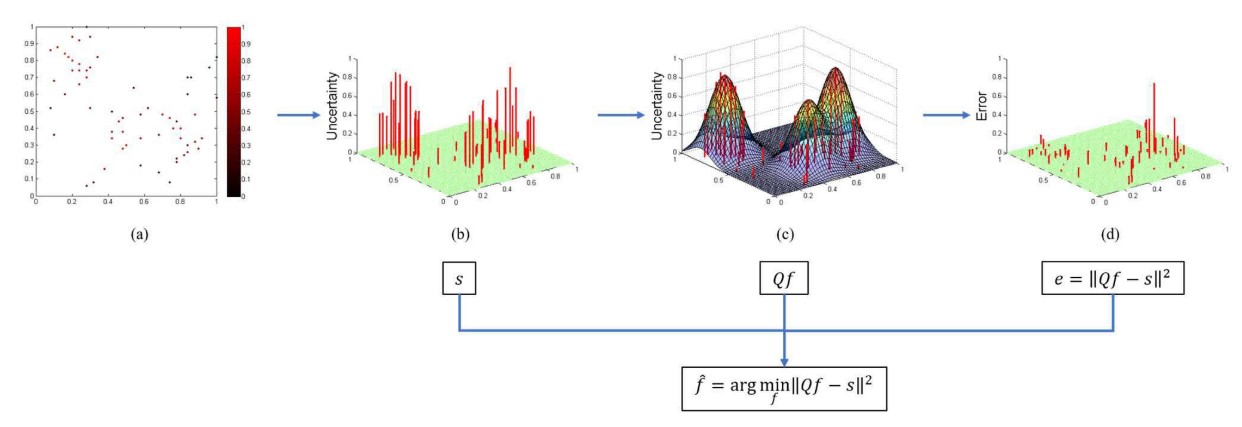
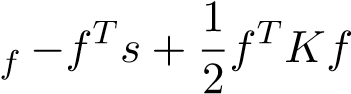


Figure 1: overview

# paper2’s title

## Motivation

*f*b=argmin

*n* (1)

s.t.X*fi* = 1*, fi* ≥ 0

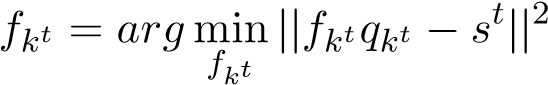
*i*=1

**Algorithm 1** SMGS

**Input:** original uncertainty values *s*, similarity matrix *Q*, labeled set *L*, unlabeled set *U* **Initialization:** Set *s*1 = *s* **for** *t* = 1 : *Bq* **do**

Choose *kt* = *arg* max*j*∈*U qjTst* from *U*

Compute *fkt* by

*.*

Update the uncertainty values for the next iteration.

using *st*+1 = *max*(*st* − *fkt,*0)*.*

Move sample index *kt* from *U* to *L*.

**endfor**

**Output:**

updatedlabeledsetL

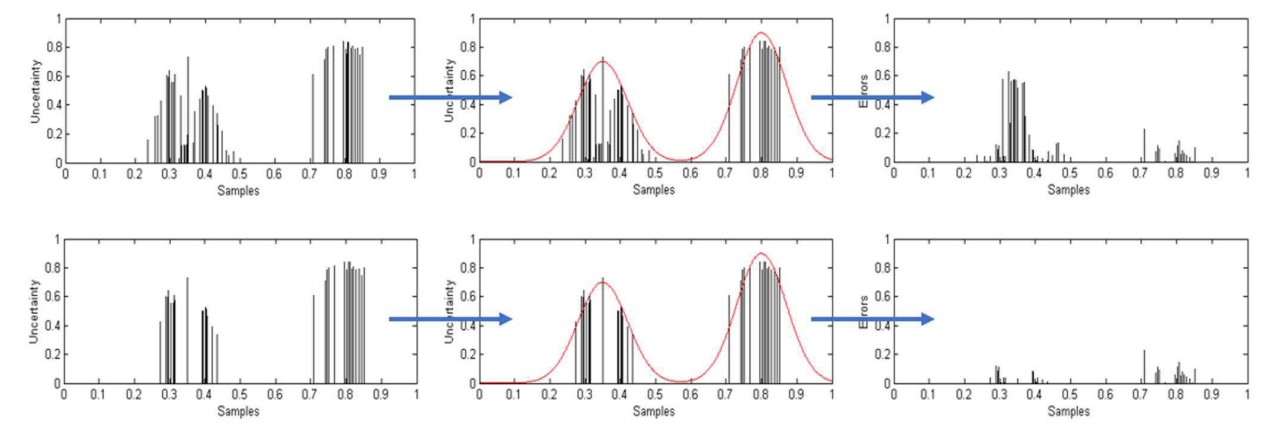


Figure2:Theoverview

The Figure.2 shows the idea.

Table 1: test table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Method | | | Test Accuracy (%) again | | | |
| Supervised | | | 55.44 | | | |
| better model | | | 59.71 | | | |
| best model | | | **61.76** | | | |
| *d*11 | *d*12 | *d*13 | *...* | *d*1*n* |
|  | *d*22 | *d*23 | *...* | *d*2*n* |
|  |  | *d*33 | *...* | *d*3*n* |
|  |  |  | ... | ... |

*dnn*

# Future Work

Future is good

# Conclusion

it’s the conclusion

**References**

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3. Alex Krizhevsky. Learning multiple layers of features from tiny images. Technical report, 2009.
4. Y. LECUN. The mnist database of handwritten digits. *http://yann.lecun.com/exdb/mnist/*.