Biometrics
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Lecture – 26

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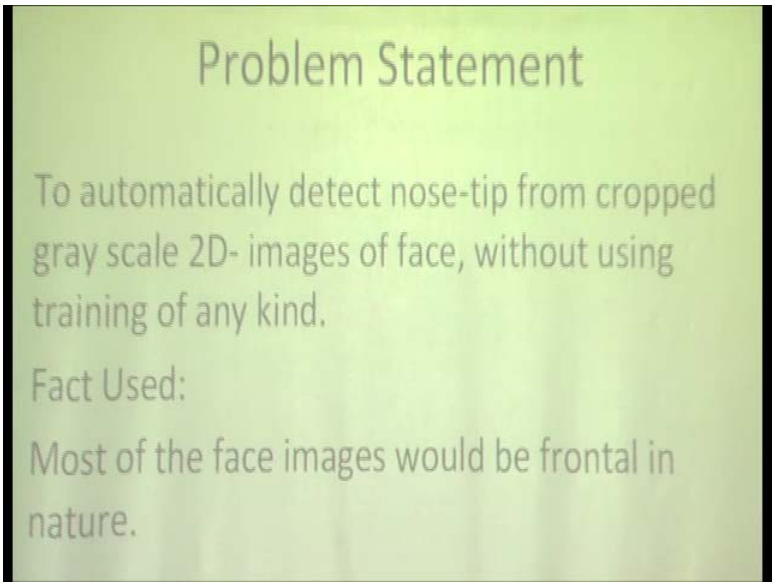

So, automatic nose detection. So, I have to make few changes as a problem statement is the same, I will make a few changes in the in the adopted approach for the nose area or using a circle at the centre of the image. Now when we make we make it in the technique from a paper in which the face the segmented face look like this, and in the other ratio given in the paper. So, actually in the curve face height at the divisions from the top.

Face of it is a normalized right, now what you are telling that if little cropping a little will be affecting a large area.

Since it is a large area I am taking a point in one end. So, it would not effect if the dropping is slight.

Yeah good I understand thank you right it can be anywhere in the...

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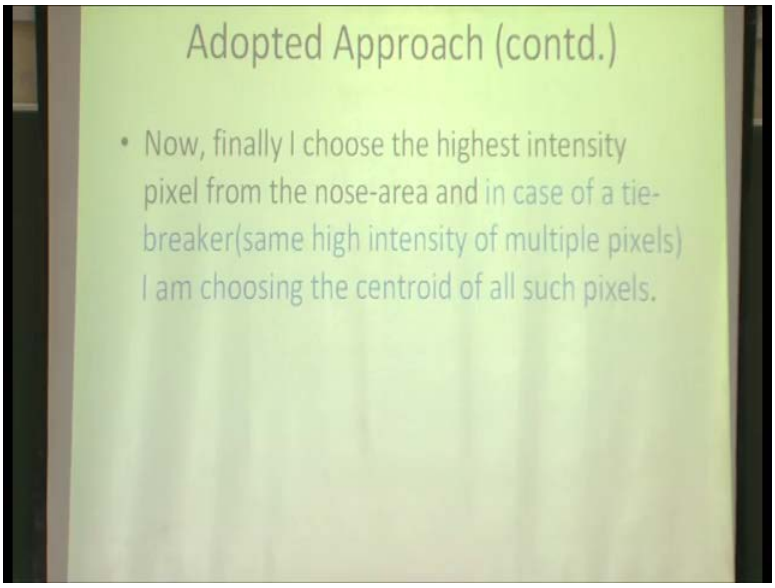

Student: Then in case the highest in their multiple mega pixel, and then I take this centroid of those. So, that it comes closer to to the most probably. So, in this case our intensity is between the if it is like this a region, we do not need to consider these these were coming in the circle. So, only these. So, which were the good results now about the shifted results. Due to light source coming from this side, there is a light patch here. That it why the nose tip was shifted here. So, if the light source is in front of it, then it would not effect it, and it sometimes due to glare in the glass it may also due to this area, the glass region can also come. So, if glasses are small it will work and but it would not work for these type of places where light sources are coming from the left side.

Could not get you but…

Student: If there is bottom comma of this factorial.

So, there are. So, what are the one is that.

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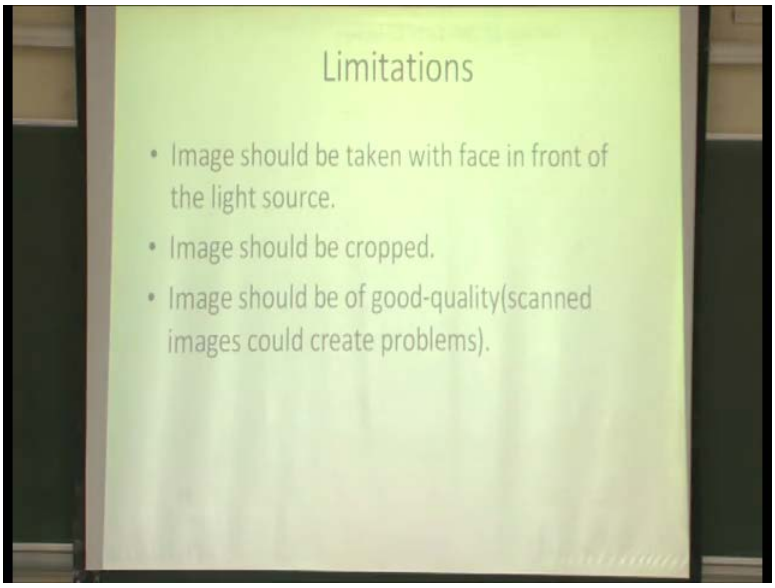

So, these were the limitations. So, first of all it may it should be taken from with face front of the light source and images should be cropped at.

Very good.

And it should be good quality in the sense like in scanned images it should be scanned image of a good quality in this sense not a scanned image of a whole image.

(( ))

Bold means the photograph in there should be a difference in the intensity level in…

In. So, suppose if it is a case suppose I will do the image analysis standard after this you will do direct fold work.

Direct fold work.

It will and it will give a direct wall as a whole, and the quality wall as that.

I did not have the.

You have anything [FL] you got that the time data you got can you show me one case where it is it will not work.

It will not work I do not have.

But both these I will try there you are also telling that if I would wear goggles, but photographers will be taken from the front and there is a problem, if it is a tilted photo.

It is a bit larger end.

Why large end?

Yeah.

Why what end greater than 3, 4 days.

There for period.

5 period it is.

Are you sure.

Yeah, I am yeah.

I want to see that under what position, you could yes you know that 3, 4, 5; you take it 3 to 5 degree ten degree like that, you can take one to three face you have to take after 50 degree I do not want also.

But did not have good quality also means greater than 50 degree.

You take regular you have your mobile phone everybody has a mobile phone you take why. So, much.

They are they are not in the, but the quality measures good.

It was good quality, but rotated.

Fine quality, but rotated.

5 degree, five fifty degree take your camera whatever way you want, but you show that it was a right, and one what its heave distribution where do you that also the you have the bad quality with rotation replace those things with here. Where it was it is in a way it will work, but when it will fail that is equivalent to what for the future, because we do not expect from you that it will remain in the great, but what will you expect moderately your direction will be given now right.

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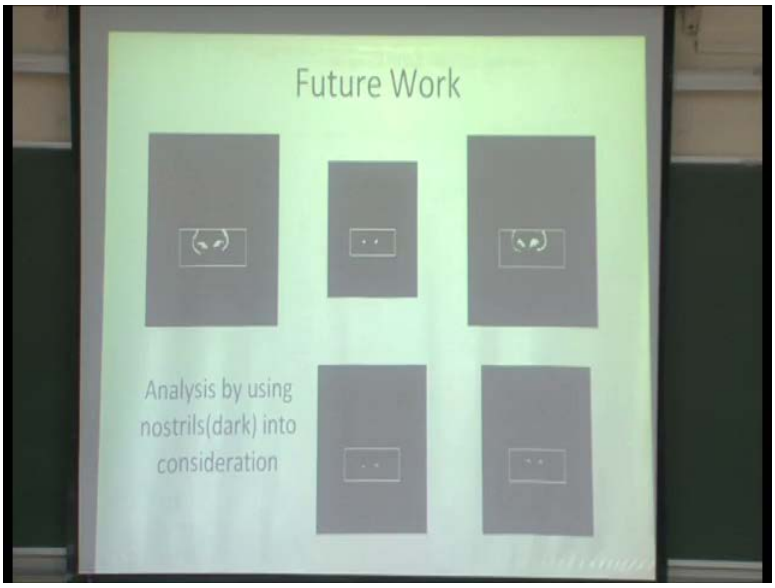

So, of course, we shall be working on this that using the nose these nostrils as (( )). So, I will take the nostrils and take the midpoint of the nose tip, but the problem was that if they have moustaches. So, I was not able to identify the dark region. So, I was still wondering.

But [FL]…

Sir I do not know how to work for those, it would work good for people without.

No, no, no in other words what you are doing see most of this has certain implification, and most this point in decibel is above most of them you understood, this is saying zero, but this is not zero. So, you have to take the whole threshold area you are taking one of them any one threshold value you are facing that problem.

The nostril dark area plus the moustache are the dark circles, moustache dark area there is margin you cannot take the test right the moustache is most of it is the nose.

No not nose this point nose this.

Inside inside the point.

But if you get the side point there, that if you want you want the dark dark end, then think about it.

Because I have been it for the intensity in the it was not.

So, we will think about it, but that is you are closing your thing you do not want to watch one thing.

I can I have… But but for this up to this is right previous one. So, can you give me the three four five four page write up also right plus what you have done you have to tell no because otherwise it will be done.

This was added to that segmentational view.

What is it?

This was only one adaptation to 2800 images.

What is you are doing several.

Due to that segmentation it fort that way, what is segmentation is you go through this let me shift it up.

Segmentation is…

You go through this let me shift it up.

But segmentation is ok.

Segmentation does not cover this part sir, due to that is the where you.

Only in one case one case out of twenty eight number.

Good; that means, you are width area also you have to increase.

Only for one case then it will increase if there is in other cases.

[FL] if you increase what occur.

If we consider more more pixel.

How many, how many it pixel in how many picture extra picture. So, how would you if you increase can you can you want to can you, if you use it from both the circular one how how what was the area bigger area.

Yeah, bigger and circular. So, if this is rectangularly large, (( )) circular area is do you you will remember the word circular area how much it is it is two radius is one point of red.

One side of the width, and it was covering too many.

Mega pixels, because it was covering these together.

But circle of give me the data.

Yeah, that time it was 95 percent accuration, this was 90 percent accuration…

But for this case circle, it was there or not yes or not.

Yes sir, it is there when we combine both of this we do not know.

Problem is when is correct how do you do problem will face both.

We have negatives properly say this or this. So, what do you do you do this one, combine both the thing, and you tell one of the things which will come right, and then if you work out how well right. So, you combine both is it ok.

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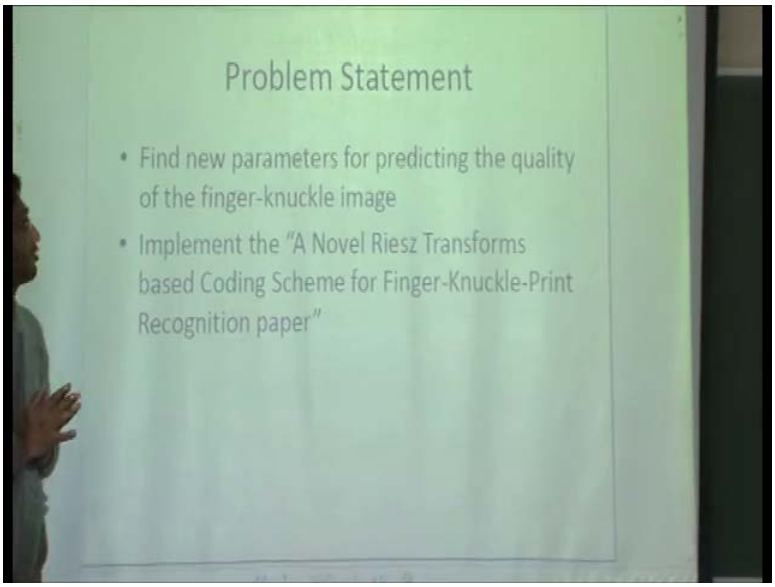

Our topic was to predict the quality of the finger knuckle, and to normally start from based coding scheme.

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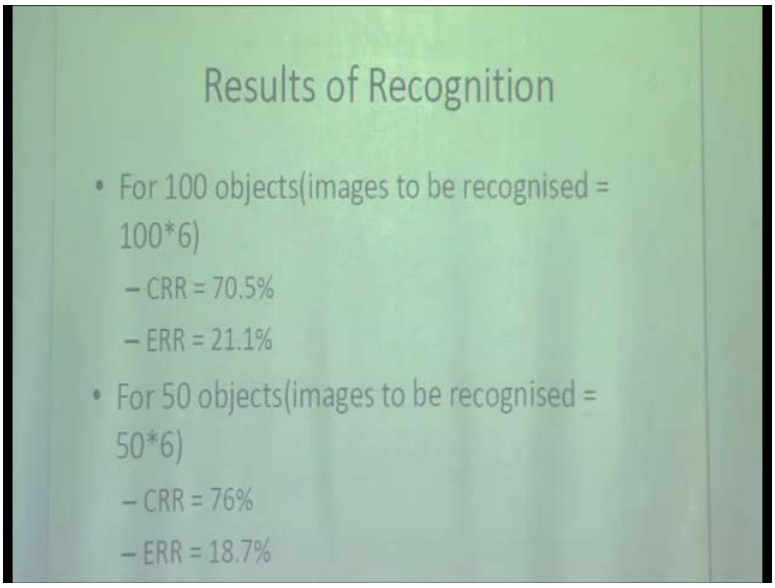

So, our accuracy of our the catalog 100 subject and the accuracy comes out on 70.5 percent and the ERR was 21.1 percent, 450 subject the CRR was 76 percent, and ERR was 18.7 percent.

So, this is the result for the recognition. So, can you tell me what have a the, this is hundred subjects, if you are matching the one to the same folder; there are six maturations unsuccessful match are the only even your single match, that is your of regulation.

Is a single method in the score, if the score of the image is less than the image of the distance as well as the distance.

But that is, but I just wanted to say.

Images of safe holder.

You have six accepted or non accepted kind of thing [FL] in the testing, if you get the get the image similar image.

No, no, no only six in this we have to all all the images to the hundred to six.

That is that is, but I am just talking about the general then all the six message, then we see the and any one of them I want to see in the testing set, if I get a image in the process I have so...

One one here taken this side and.

There are six in the table and six...

[FL] what will be the probably number of cases six, and query remains as six.

In in one subject.

one subject. So, six of them you complete when…

Sir, we put for one image we means one image is there.

Session one, session two.

Yes sir.

Right six image under session one, yes sir.

Six image under two then what...

And then we put a image from session two and mix with all the session one.

[FL] So that means, I understood know. Now, therefore, it should be that you first take for your study first you take one image, we of session one and one you see of session two, you will match. Then you see two image of session one, and one image of session two, then three image, six image. Finally, you will get eleven image, and one special that is why make eleven image and one, and then you will find that this 70 you are telling that this is correct. Because if you take eleven unit this is true they are all true, because you get enough chance to fail am I right, I think that is that much subject you have taken [FL].

One percent by 70, and if I increase one thousand it will sum down to 30 why exactly? I can tell can give you 1000 data in this check [FL], this is because it be that will be the reason alright. So, please check this one you understood one against one, two against one, whatever [FL] where did the one perfect, there we find it started reducing 3, 4 11 you take it for training and one you find that (( )) is it clear?

Ok.

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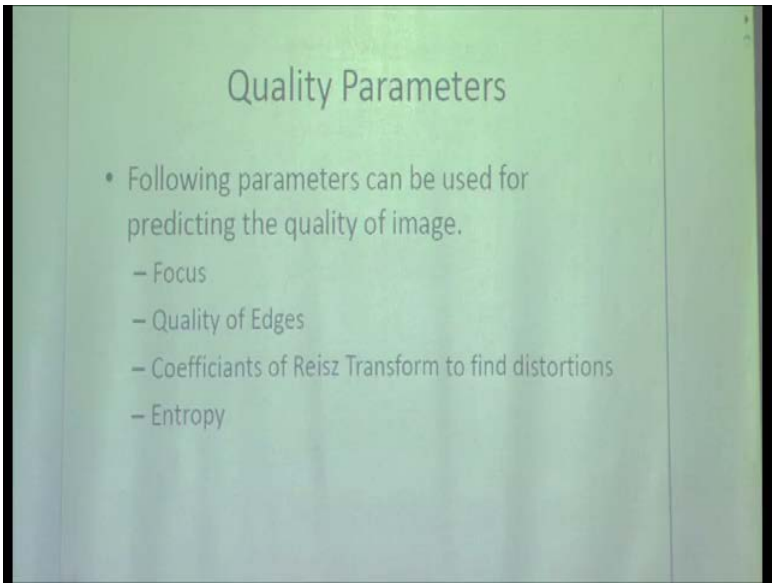

Then after quality now quality is important. Qualities focus quality of the edges coefficiants of Reisz transform, and last one is entropy; these focus on coefficient terms in entropy basically we are first line the wholeness we get different type of features in edges basically (( )).

But you must have some boundary after that everything can.

Boundary boundary means.

Boundary means. So, that we should always stand there.

What is there what? There you some either inside rate or. So, what we have done that they have component as far as possible they were. Now, what you could you can tell that there are you can due to the focus, what are the central area you may have the very high intensity both the area you can reduce. That means, but if we [FL] there is no way he can or they can think that this is a (( )), because what only focus may be there high focus may be there.

I think whatever they are doing. So, they are starting from the latter image that can be a boundary the initial image should be definite. Only what you want to do you have to estimate the quality based on that you can tell that if the quality is this, accuration will be this.

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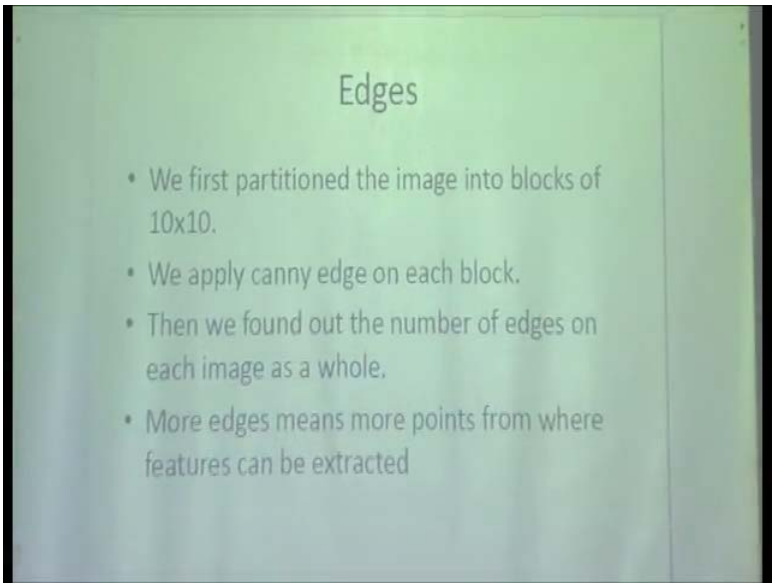

We first partitioned the whole image into ten cross ten block and we can apply another (( )).

What is the image type, first you tell me.

110 into 220.

So, ten percent is the they are overlapping though overlapping, you know overlapping, can you find out the edge (( )), you want to find out the number of edges one vectorial will be dropped then step by step it will form a partitional another one, you write another one.

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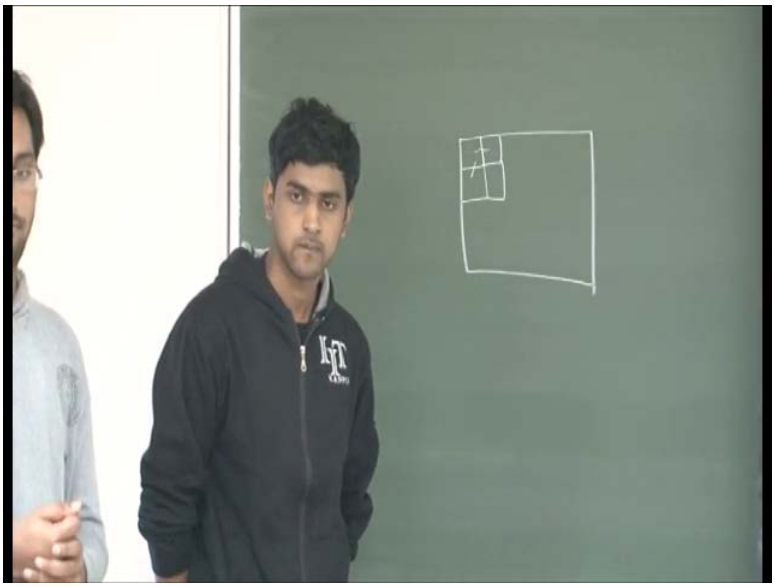

Now, you draw some (( )), which is crossing this way, and another edge another box you draw another edge you draw. Now, you tell me without overlapping how can you is it possible to determine the number of edge, because how many edges are there you have taken care overlap.

Yeah.

Four (( )).

So, how are you going to.

But in the we are we are applying the same thing of all the every vision of means.

(( )), you take three drop and one is overlapping here, another one, another one is here, then there are two edges right in practical.

Actually we partitioned the whole some portion is there is.

Basically basically what is edges? Edges is the number of connected components, you want to find out. So, to obtain the number of number of connected component why did why do you need to block them.

First we applied the without block, and there will be some dark area and then…

No, first you draw make the block area small, small block and you do some into make that read this, but see you understood.

[FL] minus [FL] then multiply it by some vector, then it will become a ridge once it becomes a ridge, then you find out the number of connected, this is what this is, what this is a wrong word edge is not the correct number of edges right. And what is the appropriate number of edges that is also fixed or if you see that every knuckle, that is appropriate number appropriate number of edges are there right. Suppose you got two that obvious quality is four, if it is five, is it not? You check that what is the average number of the, that is that is visible you do not have to find out any.

If it is less than that you tell that quality come down right, that is the thing you want right. So, find the number of connector what is the formula equal to what is that 11.5 you know of course, the average.

It is the average of each drop even if it is high, then then it is good or it was fine then then the average point a into the average 0.5, you have seen five edges according to your and then the mid image 10.51.

You have to find out you do not need to do this, you just find out the number of and you know the number of that would be and you know the number of… Suppose is one involved, then obviously, if it is right, but how many in lines are there 1, 2, 3 count it magnifying glass, and that would you should not care you know for you.

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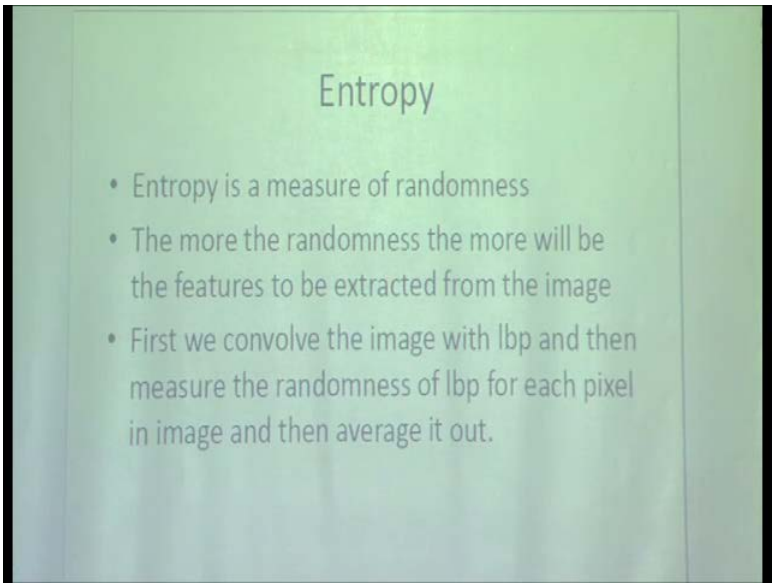

How many lines, and this is common lines both of that you get always good entropy is only if you need that that you must ensure that noise is not there is the focus if highly focus then basically nothing is visible noise is there.

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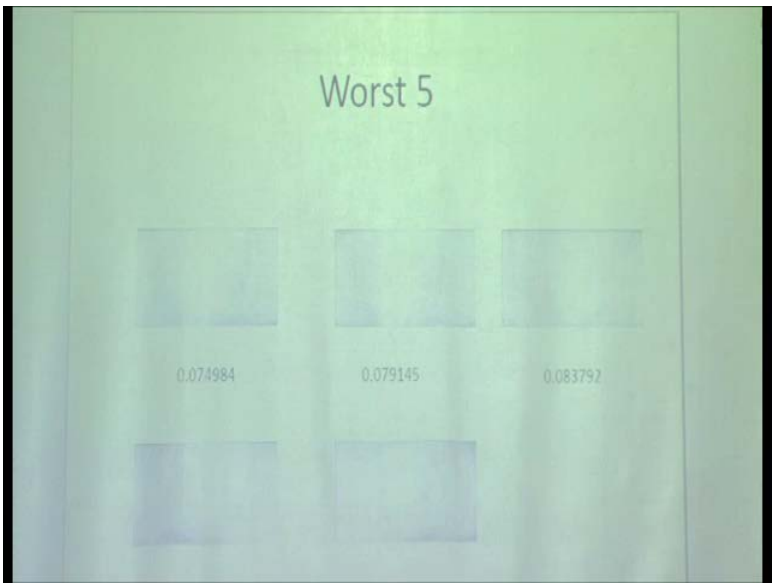

So, you are taking that entropy of whole equation together or drop by drop whole equation why not the (( )), here I feel that if you take drop wise, and you obtain entropy drop wise, and you may assume that suppose x number of entropy is x number of blocks is very high. Then you tell high that is solve here what they are you are telling that if it is

there light is there. So, each block you find out the entropy how many blocks of your unit are having high entropy, suppose out of 100 of them are very high is it too; obviously, you will tell no right.

But if it how the one at ninety of it is very good entropy very good, then and now in between these you put some other this is I do not know what it gives. So, you have one ideal image.

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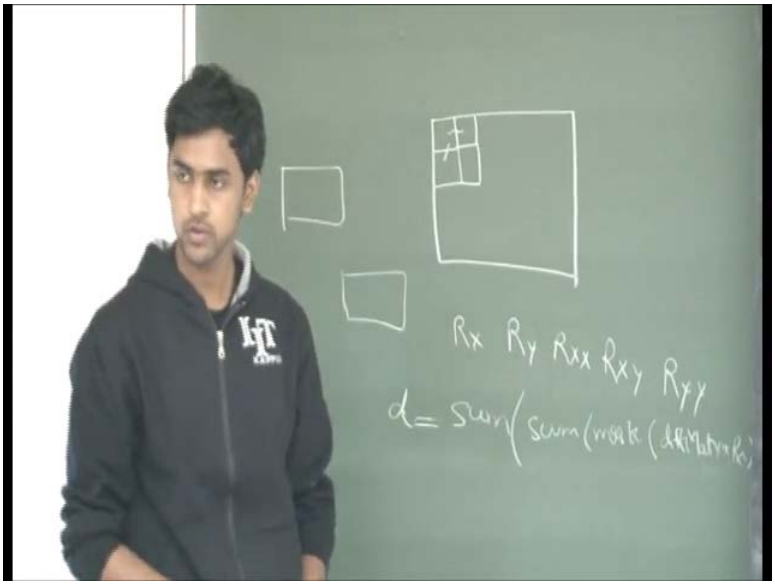

Basically we have obtained called R x R y. Between the two images, there is R x will actually be not a value it is a all of them are same size matrix as of the image.

Matrix gives you what what is the r i g?

That is the coefficient that the ridge transform, they have calculated what is r i g?

Do you feel I do not know in this two the image should be registered.

If they are registered then they are the values will be correct or.

You take the two image of say that this.

We have taken a reference image from the the images, we taken for the testing are not are not for the we have taken for the reference of the line.

The same reference we will get R x R y R x x, basically you take the image the same image.

Same finger.

Same same finger same image only rotate it by or shift it by translated by x will the result will be same.

No, no sir.

Then but the quality will be really good the green alert, which is which is shifted or little feedback.

Sir, what they have suggested is that for recognition they are using the registrar form based from the shades of the features now they are saying that ultimately while recognizing we will be using this then ridge transforms are up. So, how well they are something like that you wanted to say because ultimately you are working on ridge transform like R x R y R x xx y yy, what they are giving do you know what is the physical significance of the rotational, because it is written in the paper. So, you have also that 6. So, out of this only three things that you do for features, and that is the... So, what are those things.

Out of all these five x xx y and y y. So, ultimately you get x xx y and y y; these are the real numbers then what you are suggesting R x and R y, and these five matrix you will be getting then after difference matrix.

Now, from that how you are…

It is best five.

Sir, more work can be done that we have taken care of the rotation invariantly.

What you are saying it is not working, it is working properly, but more work can be done on this is it working properly I mean whatever you are saying that is right. Usually we see we can say that the five was five every five you can make this is better what you have written is the bulging side of this finger attached bulging side, and in the previous area as you see I mean can you see on that the screen I will change the images they are better.

Here you can see that these images are you can say these are this is not that much, because there is one you can see that the even images are lot more even you can say that you just check that whether you have.

I have shown that correct images, because according to me what are the worst I think that, if you have I mean shown the wrong images then it may be according to me was better than the rest.

Because do you know that you had something, what is it suggesting you do not know these are all the parameters right. So, according to that you got some value then then you know that anything in that ascending order are you sure that that we are getting the maximum that is the worst image or it is in the…

In the same folder basically for the what is the attached method means that either the value is high then it is good. So, the reference image that you have to have you have to get it purposely, because results for this are not of this kind they are in the forms I can tell you one parameter they can be like that you are using six bits from your these expression, these are from the ridge parameter ridge transforms. So, what you can do is that you can use that information, because you are not sure about ridge transform what physically digit, but you are sure about the transform.

So, use that you can see that how much variation that you are getting for portion, because suppose that what you do in component that you apply a vector or whatever and you see that which you see it is. Now, you can check that what is the best response, and what is the second best response, and then find out that if the second best response is the ratio between the first and second is more. Then you can say that it is having a proper orientation, and in this way out of that out out what you try to find out those number of the number of which is having a clear cut estimated orientation.

It will tell you that how well in which, because it is having more discriminative orientation how to use that I do not know, because there is a paper from the of I think that if you have read that paper yeah, though they have said that they have used this this transformation parameters for quality estimation not for of the quality methods that is not the image. So, how you can use that that is thing you will have to do right.

So, but how what is the plan of action, now when are you going to do what will you be doing and what?

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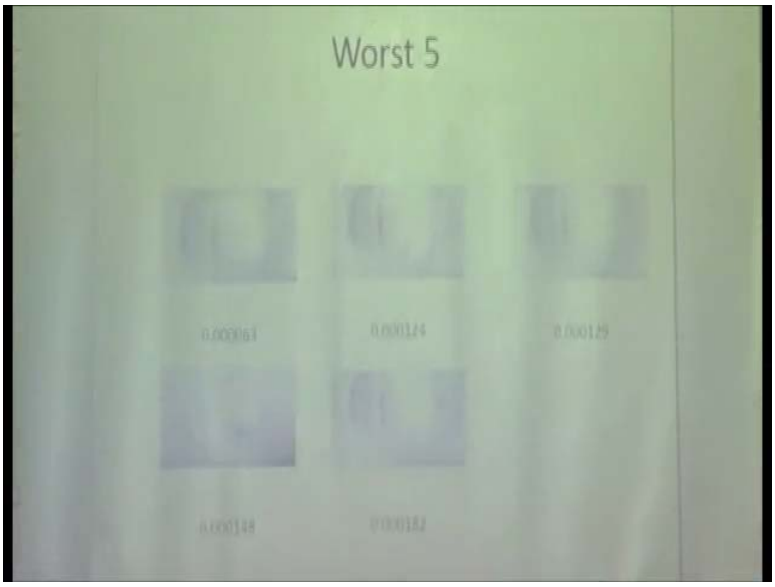

We knew that what we do is that take exact we focus this image of this image, and we find out the average on this in this middle path, if the image is well focused, then there will be more features will be visible. So, we use this parameter. So, these are the best five, because the middle part is trying to focus here and this is this is...

Focus for the image comes that was without focus and of course, that you do not have to tell and this will be beyond you are telling that this parameter after that you will take only thing is that please check, and do it and remember one thing first parameter you will tell me that what you have done.

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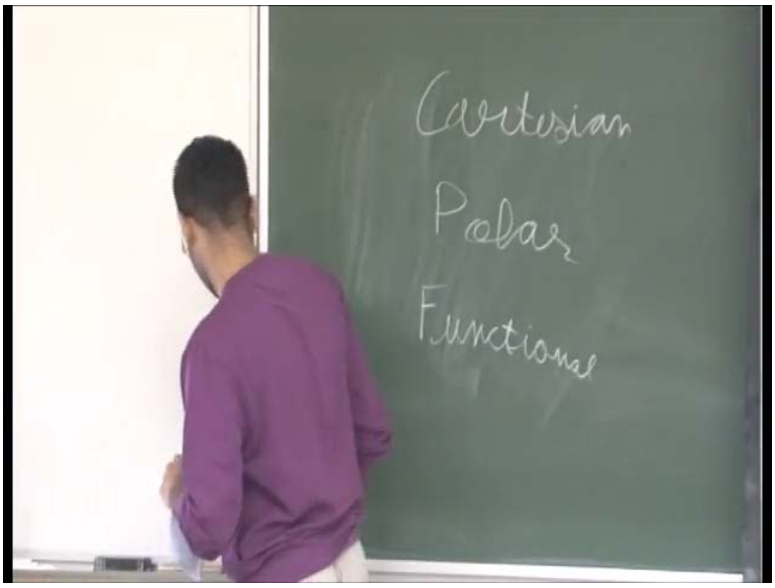

So, this paper explains the heat basic phenomena from which we can generate biometrics. So, one is by a Cartesian transformation, and other is the polar transformation and the last one is functional transformation. So, what happens is in Cartesian transformation, let me give you an example.

Did you tell your pick you have to use Cartesian transformation, and you will not use polar you tell your pick, because and what is the result you are expecting and why you are not getting that.

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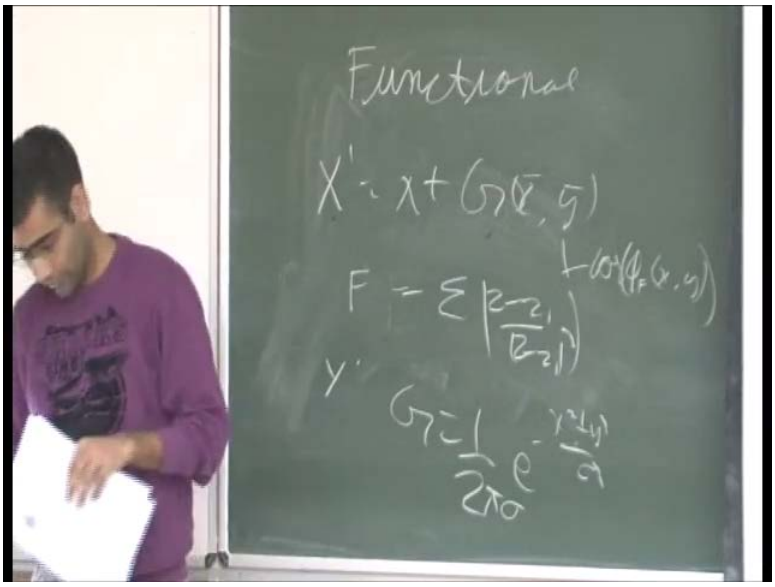

You tell what is functional transformation? So, this... So, this is sample you have got to. So, in vertibity even the function should be like non vertible, it can be can be one way it should not be sir G is the Gaussian function.

So, Gaussian function of course, it has it.

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This is the transformation and the expected result is…

What is the expectation?

Sir, for the component transformation the expected result should be a something like this for all the expectation at the rate of ten percent should be around 0.9.

Really an expectation I will give something, but are suppose to your presentation was delayed right [FL] the thing is your thing is not yet ready yes sir, but you have to tomorrow, now who is coming?

9 6 7 6.

9 6 1 0.

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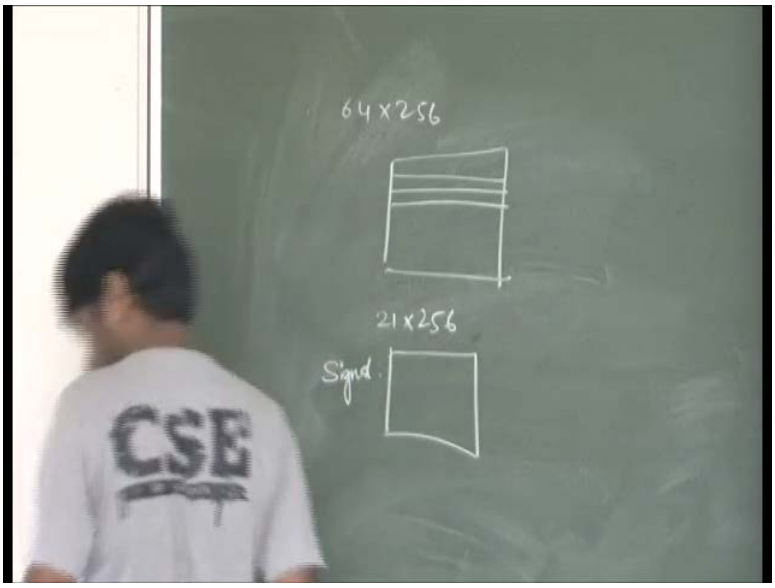

Good morning everybody, my presentation is I have implemented this paper first I have one dimensional intensity signal. And in new intensity the matrix is generated at I have applied the wavelet transform on it first I have given you 64 into 256 image image I have taken I have first two in this 64, I have clubbed three three rows. And I have generated matrix 21 plus 23 and I have applied a wavelet transform on the obtained signal matrix this is the signal matrix I have obtained.

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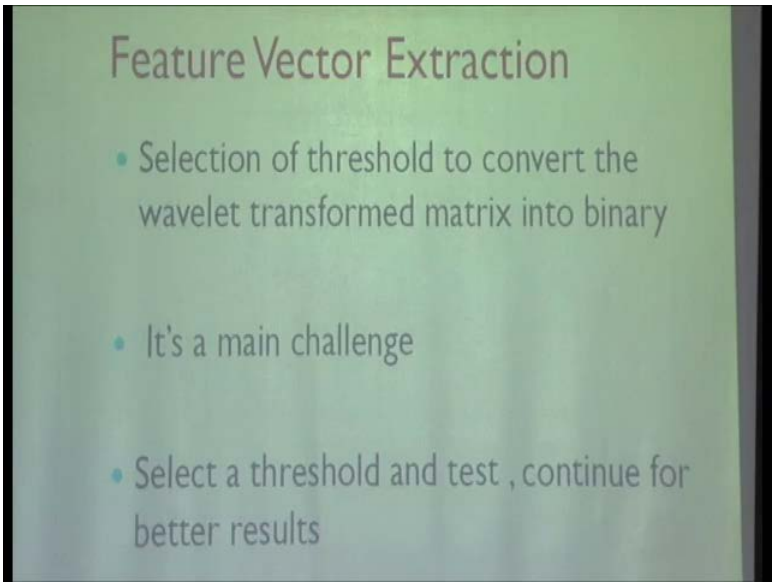

After after the signal matrix I have to extract the feature vector for the obtained signal matrix. So, in order to do that I have to select a threshold to convert the signal matrix into a feature vector matrix the selection, which threshold is is a very big problem, because I do not know exactly for what can be the best result should be coming and for the mass which was given to me or in also 64 plus 256. So, I have to convert it into in order to match this I have convert it into 24 plus 256.

So, what I have done is I have taking three three rows I have I have checked it, whether if two zero are occurring, then I have set it into zero or if two ones are occurring I have set it into one. So, majority of it I have taken and I have used it according it to the signal matrix. And and finally I have found the hamming distance hamming distance in the feature vector taking different various thresholds I have found out f a r f r r and c r r first I have taken it as in matlab.

We have a great greatest function which which automatically depending upon the intensity of the pixels it automatically sets the value, but seeing seeing the the results were. So, I have consulted Aditya sir and he has suggested me to check for the various thresholds. So, I have taken I have taken thresholds as 0, and 0.1, 0.2, 0.3, 0.4, and so on till 0.7, and after for after second value it increased after that again got decreased.

So, I have checked it for 0.15, and it up to 0.3, it has 66 and 65, because decreasing. So, I will select it and again tune it 0.15. So, I got 75.8 CRR.

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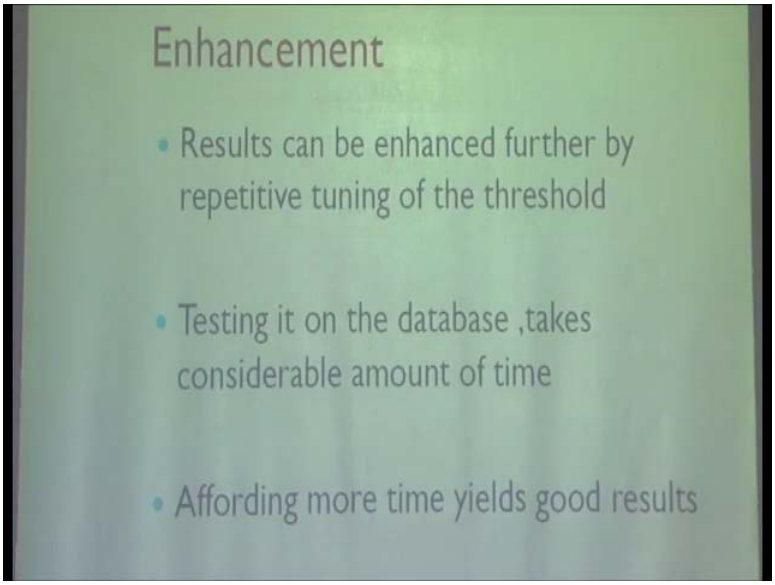

If we again go on setting this threshold I can say that accuracy goes on. Because the value you got it is very only thing is that whatever right, that is the thing given image whether the you have obtained that whether you have taken one dimensional why not two dimensional right. You have reduced to two into two the second thing is that the method you have followed you revealed we felt from the method you have followed all the mass.

In in mass if if I have summed it three of them I have I have summed it sum of these 3, if it is greater than 1, because if it greater if it is one, one bit one one is occurring in three rows then it is I have not considered it two zeros are there. So, if it sum is greater than one again I have applied the same thing.

What I will suggest is that they are after that there will be lot of expectation that there is up to seventeen six percent in the paper it is saying almost hundred percent, and the p e r is also very small. So, what I am saying is that you just checked your whole work again, because their also I have pointed out some knuckle print they were saying that fifteen percent or twenty percent. And after that they came to me and said that now it is 70 percent straight forward there may be some problem in the otherwise there will be some more expectation.

But whatever you have done I will see that.

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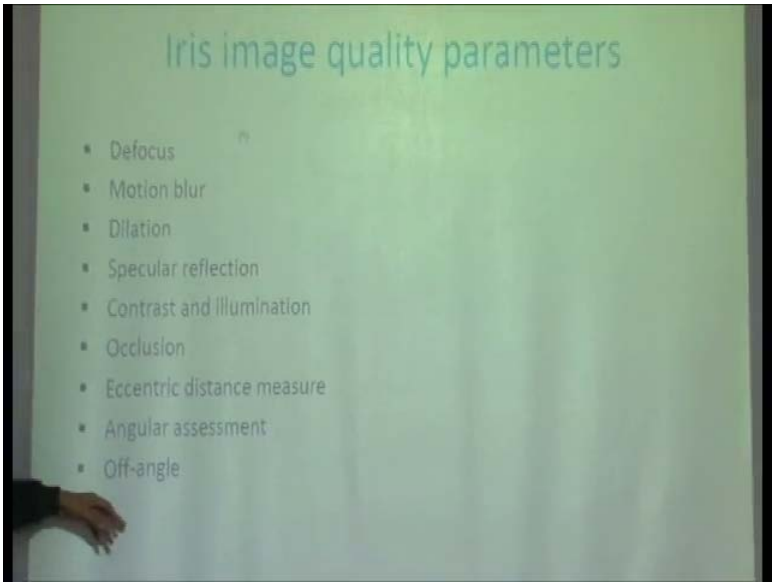

Whatever is my project estimate the quality of iris image based on the different quality parameters; these are the different quality parameters, I am I am this two angular and eccentric distance measure and these are.

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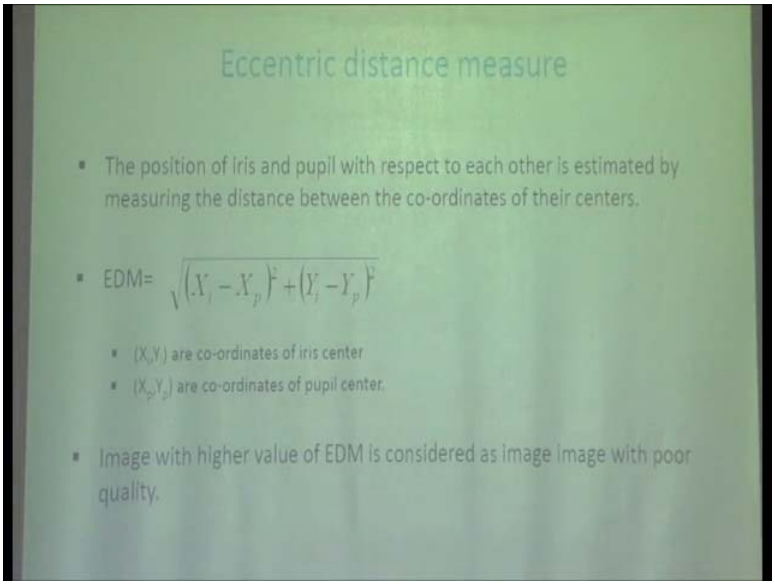

So, we calculate the eccentric distance I have considered the distance between the center of and organize this dividing by button. So, the maximum value for data base is coming around ten square and always you have a ten and between zero to one, and the higher the value of distance the lower is the quality.

And the angular assessment is that the angle between the two conductor line between the two conductor. So, again this value will be between minus pi by two to pi by two. So, I have taken the absolute value means the I wanted the negative positive and divide it by ninety. So, again it get between zero. So, one or I have estimate the session one and session two. So, here the lower specular reflection.

Both the…

More the lower is the quality there dilation and specular reflection, they have used the same thing what what verification you have have done on those parameters.

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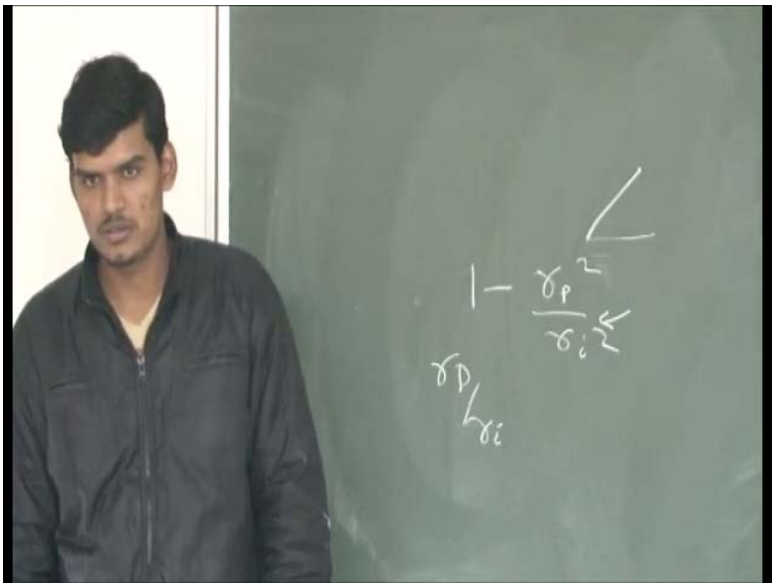

For dilation we have considered this formula, and I have considered this formula.

Subtracted by minus subtract it by one, it is just like that whatever he is saying that more is better than less, but exactly this is the same thing.

But I have given the new new quality parameter.

But dilation it is exactly the same thing for the other one.

Specular reflection is same.

Exactly same.

Simply one minus we have considered either of the value. So, why have you subtracted why you have done that.

For the distance I have done the poor quality.

So, you just wanted to make the otherwise, there is no change you will have suggested two new parameters yes sir.

What is the accepted distance that you have taken the distance between the eyes and the pupil and angle between and the angle between them, you showed that this was that that is results are exactly same like that of the…

You see the eccentric.

Most of the images are having 0.5.

0.5, it is zero to one maximum values are around ten and around five.

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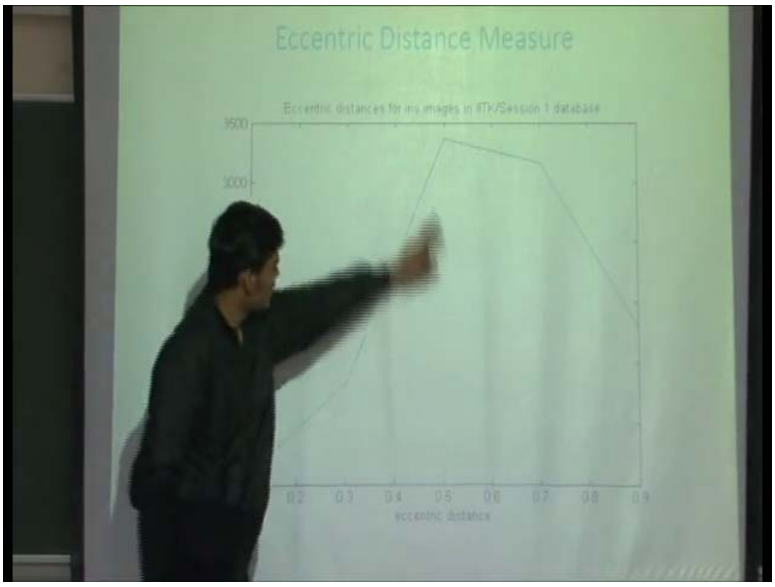

So, the most of the images something like half 3400 images are having exactly the same value exactly the same value around around ok, fine.

Total database for this is 10200 which is the end of middle point, and these are two most of them are having point above 1000, and then it is point nine there are most of them are having 0.9 7000, 8000 images are having 0.5. These images are for recognition it is like that suppose they are poor, but visually it is not visible.

I am sure some bio data transform you are having the details why.

You cannot see it with the eyes.

See I am not saying that there is distance which angle is will be more critical that is, but if you are saying that the this image is good, and this image is bad with respect to your then at least we wanted to see why you are saying this image is good and this image is bad right.

Larger than the segmentation method, if we are considering them as a as concentric concentric circles, and doing this segmentation and normalization.

There are means that the distance between two centers in between if it is more the energy segmented to the will be a problematic issue.

It will dealt by concentric circles then it will move a.

So, we assume that it is circular and then we assume that it is concentric circles, and then we normalize it and you are saying that if the distance between both of them is huge, then this assumption will fail and normalized images if it is right we want to see that it you you got it.

It is justified.

So, for the classification I have used the if I do the supervised classification, then I have to label all the images the its quality may be 1 3 4 5. So, I would use that supervised classification. So, first I clustered the all the images based on the quality of, and then assigned them to cluster one two three four five all the parameters I have given more weight to (( )).

Even the all of the images you have find found out the all of these eight parameters and every image is now a point.

I am using clustered image I have used clustered image.

You have done matlab.

Yes.

So, each image you are having this same parameter three dimensional meets a point.

Yes sir.

Right. So, all of these points you have clustered using, and you have parted out how many five clusters how many images you have.

Good images will cluster together and so for the ten thousand images, and again taking seven thousand upon this I have trained the classifier.

How many total images you have?

What you have done whether he is lying.

You can clear it out manually that will result in (( )).

But you are saying is that if you choose the even more carefully.

The result of classification.

Ultimately you will be classifying the you are classifying the, what data when new image came five pluses you have.

Five pluses I have I input it will result with the…

How what it does you have used some algorithm or.

It is given in matlab new value that.

Have you read read what it does?

What it is doing?

Have you read that.

You do not know what it is doing may be better clustering or better classification will help, and also as you are the clusters will remain more intact you know the training the class levels that you are assigning, if it is the class level is…

See for example, my side if you take the not only the same classification not only the neighboring classification I am sure that you are, and you get it what is that what is that how you got? So, you must be including the neighboring cluster whether lying in cluster two also how to find out the neighboring neighbor of one [FL].

I am doing the graphs for all the data I have to submit

Yeah, submit everything on the report there were two clusters; one is that whether it is how you justify it that after that all of it will be same I will be giving you are saying that out of this five - one to five is. That means is that is it correct, because because you are in the eighth thing out of determinant two you have suggested by you.

Yes.

Seriously I was interested in I was interested in that you have added something or not, because if you are using. So, in all prospect even you will be telling me that it is good or bad or whatever it will be consistent also, because you are using the existing ones as I am interested to see that whatever you have said about this two thing are they working, because that is the only thing that you have done right like this. And after that you have used the (( )), that is what I was I actually wanted to see with respect to these two parameters what you are saying are good are really good or what you are saying are bad they are really bad are they able to do otherwise you know what is what is happening.

That even though you are taking these eight parameters, those two parameters are not staying valid only because all this classification and clustering they have not even in use they have not considered those parameters got it that exactly I wanted to see that how much you, because I feel that your values are your two centers are distant. Then our actually fails and then there should be some distortion in the normalized image which are…

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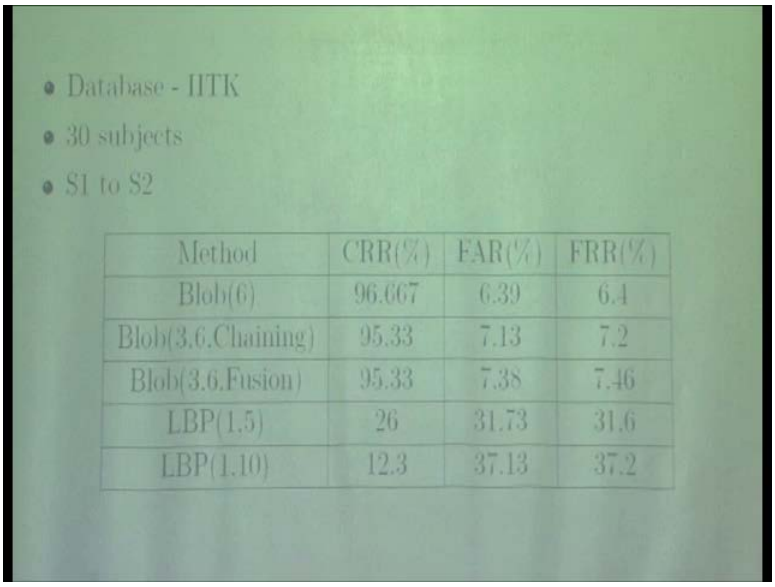

This is on the thirty cross thirty, but I have done five, but the thing is that LBP results are not good as written in the paper, but blob you can see the results are I think they are ok.

It has used two features; I have had I have used two features, because there are only these two features I have to randomly choose the any two I mean one from this subset, and one from this subset, but the blob as you think the results are, but the l b p results are not good.

12 percent.

Yeah. So, I do not think means I have a means I have check.

500 subjects.

500 blob results only your l b p.

Your rejected group is that and only few block.

No I have not used anything blobs only blobs.

The graphs.

Assuming the graphs they are something your subject is 500 subject.

500 was 500 ITK.

And also also some part of the spectral one you should have taken into spectral one if it is the number of edges.

This only blob means each one takes seven hours in 500 plus 500, I will give you that the only issue is that LBP was. So, I did not check for 500.

Last review I will continue from that point algorithm is based on these scanning rows, and then column and algorithm was last time, which I suggested was scanning the rows, and getting the single boundaries and then scanning the rows.

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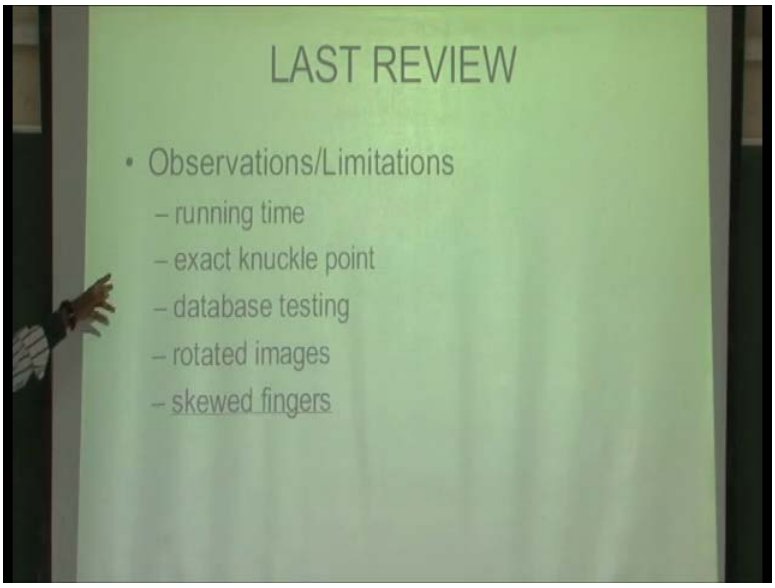

So, last review you wanted to do the running time how much takes to the image, and getting the exact knuckle point as the last record which he is not getting the exact thing. And testing along the database and rotated images in case the fingers are skewed sort of a thing if it is overlapping or something, since there is a profiling I have tested around in like two folders twelve twelve images. So, takes about less than ten seconds. That is the segmentation having from the four you are getting four ends.

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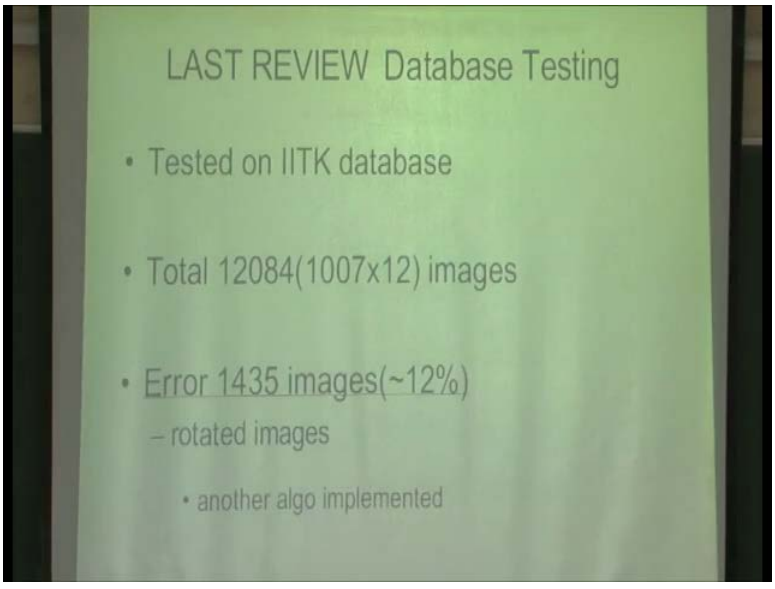

Next is whatever are tested in the database. So, whichever answer I am getting I am getting the exact knuckle point provided they are separate tested on IITK data base, that is about 1007 into 12 images. So, I got errors for one four three five mainly due to this is the rotated images.

Rotated this way.

This way sir, there is no case that the there was good images or not and for that whatever whatever I have done after that is alternate algo; one case is like this suppose in this case it is slightly rotated. So, my this thing overlapped. So, if I scan it I will not I will not get the end of this finger both these finger will be clubbed together. So, we can if you just apply an average filter compliment an average filter you can get the image like this, and there is a function build in function, which will find the connected components.

So, I can get the others and can make a bounding star on that. So, I will make this. So, there are many smaller this thing also connected components and all what I have done is, in this I have with this, this, this finger which are the top most which is generally what I have seen is this is the one which is this is in the maximum which will determine the angle of whatever is the rotation. So, in the same same function you can get the which is I mean the maximum area bonding area, and all the this point top most one and this is a maximum an area which is greater I can have a bounding rectangles somewhere here also which is smaller which is more larger.

Largest.

Not as larger it should be more than that.

Its half.

But, but if I if I have some point here with some smudge here on top of it, then that can also just take the top most bonding rectangle that can. So, I can just identify that basically I will identify this finger.

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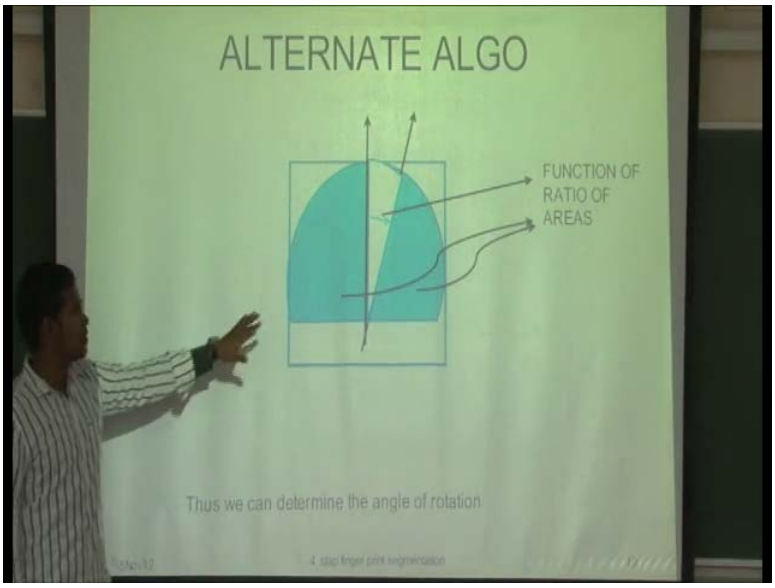

And it is like the basic assumption is the finger is symmetrical other all top top ones [FL] that is only.

Only the middle finger.

Middle finger top part should be symmetrical. So, like if it is area will give you the angle the image and apply the whole algorithm. So, I am getting out of (( ))…

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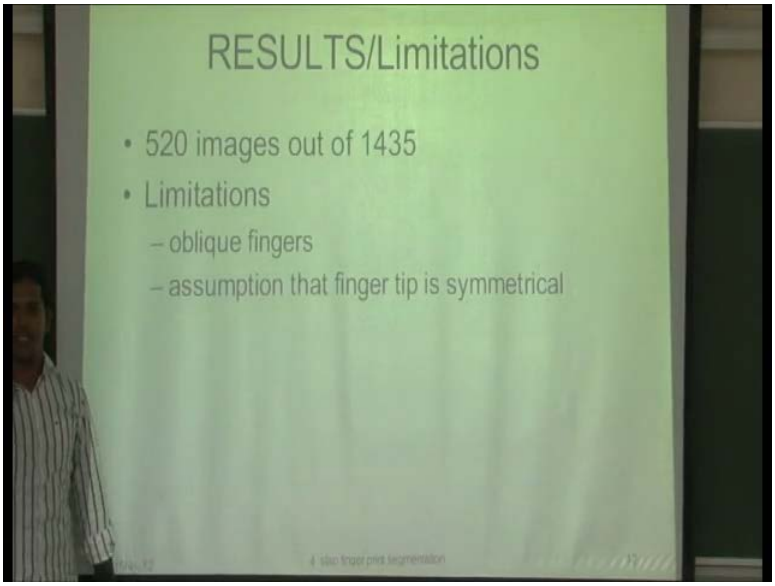

So, 520 images out of these are the errors like oblique fingers, if the finger drops are not symmetrical. So, I was not getting the exact angle of...

The problem is that you are not able to get the correct orientation of the image the finger, but as I have told you that.

In this algorithm while finding this thing it found out the segmentation also its integrated together, now like if I apply then it is as good as [FL] then my it is.

Because if you do not know the what he has done is that he has done for all of the orientation.

All of the orientation.

But anyways 520 is a good number and that much then the accuracy will not be good, but. So, orientation computation is a problem.

Yes.

But if it is solved or you know a priory what is the orientation of the image some how fast whether that your algorithm.

The accuracy is not.

You are not getting good results very bad results what about CRR, it is a minutiae template code you have completed everything or you have done the complete.

We are not sure whether the there is a problem with extraction or there is a problem with the biometrics.

There are there are something like 25 parameters, and they are all are written. So, you have taken all of them and did you assure that you have and the standard complete.

I mean I generated a few minutiae template and I rotated with by two degrees, and translated it and compare with the original and I was getting 100 percent accuracy.

Fingerprint recognition the minutiae extraction.

Am right.

Yes sir.

When you started with the .

Preprocessing, minutiae extraction, removing false minutiae false minutiae, and calculated.

We agreed we got the result of all that is important.

I have extracted more than one nearly 30 minutiae's, and in only three of them are false.

See what we want actually the problem, then whatever minutiae points there you get they should be two volumes.

Whenever there is noise, I am getting some false minutiae.

False minutiae comes from the noise only.

When there is high noise means when the noise is greater than...

Did you.

Mostly here and some work there.

False minutiae and some. So, you have some images and...

And these are the images.

So, what is that? So, you have got minutiae and then how you have removed the false minutiae.

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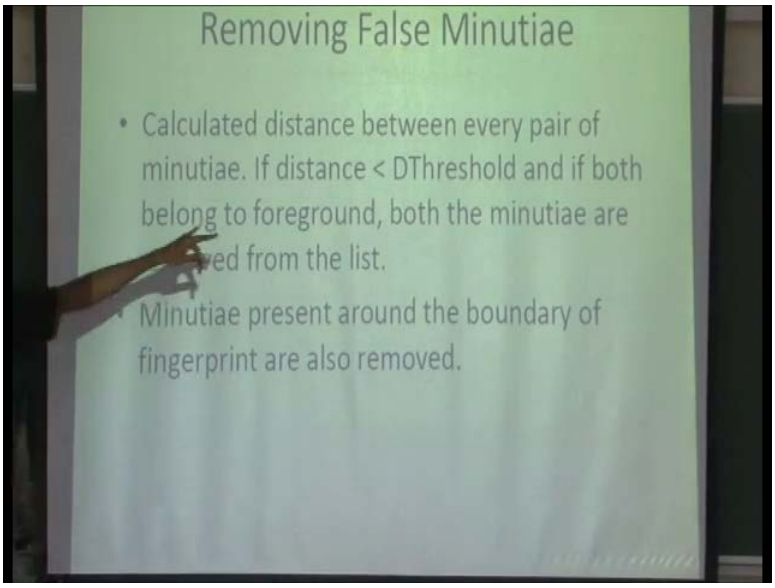

Here threshold I calculated distance between every pair of minutiae, and if the distance is less than this threshold means small for noises both the points considered both the minutiae will be neglected both of them.

So, you would have five minutiae then is calculated then…

And if distance for every distance I compared it with some constant threshold, and if the distance is less than that I removed both the points.

Both the points.

Means, they are very near.

Ok.

So, but one of them will be two.

Actually sir this threshold will be some constant into edge width; edge width is this is a edge width so.

The two points are there right, and one is see this is a minutiae point, but all points are not minutiae that even, this is small; one this is I got considered this is not a minutiae not just the next one next right right, what conclusion here?

So, there is no noise.

So, you are still not getting some minutiae false minutiae points.

Very high here the noise is very high. So, where I am getting some false minutiae, if the noise is high I am getting false minutiae.

Because now I think that after after recognition, he will be saying that whatever minutiae you are giving him and he is saying that they are not correct right, there may be a possibility or otherwise you have told there is there are some parameters you are not able to…

If could get a correct minutiae.

How to get it that is the problem.

At least what you can say is that, because he is saying that he has manually taken out minutiae, and then he is getting sir what I am saying is that today. And I will say that he spend some time, because you are saying that mistake in the coding or whatever he is giving something that how much you can do you wanted to tell also about your part.

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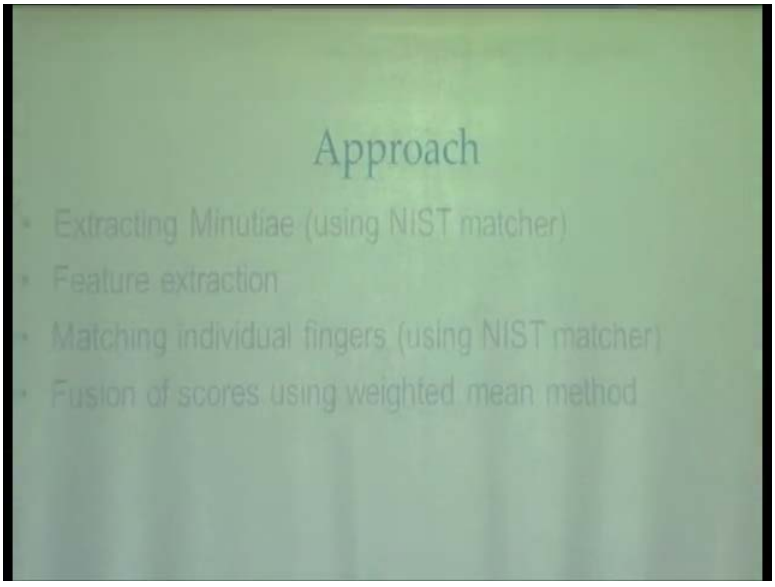

My problem is given the segmented image and given the course of four finger prints.

So, you have the minutiae points, you have to for each fingers, and also some accuracy of ten otherwise how are you going to…

Sir, I actually then trying.

Because the accuracy.

Yes.

Then up to this is clear [FL], what is that feature how did you get weights minutiae points detected, this is a quality parameter if if the number.

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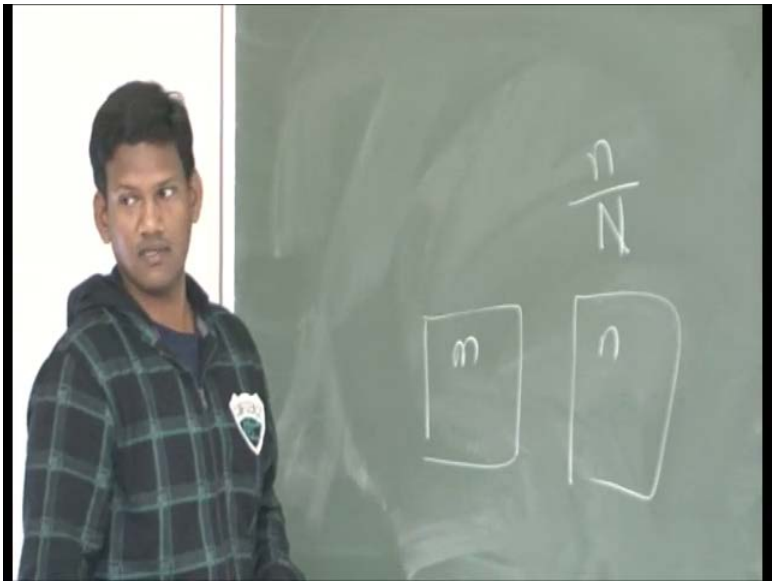

Number of points divided by the total area, what is it is a bit different?

Actually what I would prefer I would have preferred that you, and then you got the accuracy of both, and also this parameter accuracy, because that means, no.

Which finger is giving more results and…

So…

The middle finger, and for this database implemented that also implement of one zero about this is 99.4, and that is 99.49.

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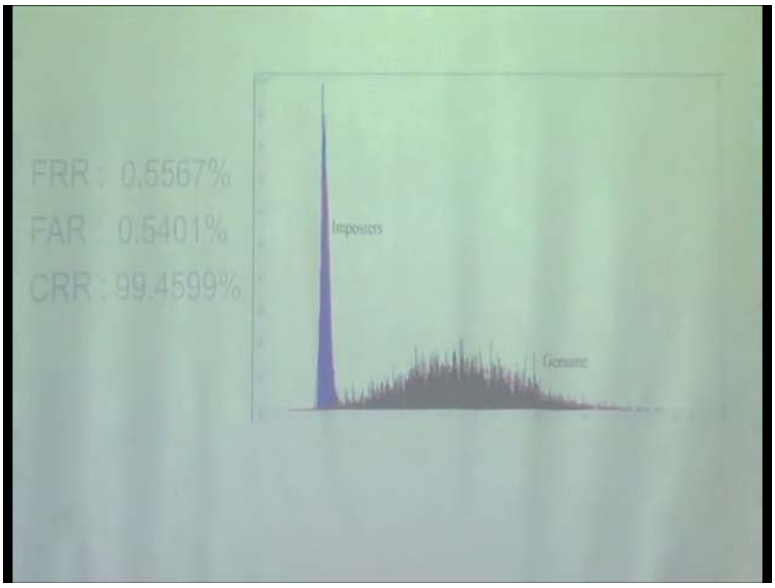

This see increasing 0.01 percent instead of if the fingerprint increasing after 99, if you increase 0.01 percent 0.7; that is also very good for us. So, that you could all those information then who will verify good results.

Then it is a good, because it is and the accuracy, because he has I mean used the quality parameters and accuracy.

So, both of you sit together, and now the force slap segmented things, you add this routine it takes two seconds to go right.

He has also given the demo part also. So, in that actually it is two images I am saying that for it is two images you just take four images, and four images right what we will do 55 1 2 55, 36 36 90, 36 absent. So, they will be mark absent nine three zero five nine three zero five, nine two five zero nine five two two seven five two two, nine five four seven. And then 9 5 8 1 thirty one twenty five nine four two five nine double zero two then nine four six seven then nine four zero eight nine four zero eight nine two seven one nine two seven one fifty six nine one eight one. Then nine one six four nine one six four nine six one zero, take your page nine four five one and nine three zero nine.

So, all the best and I am expecting the exam will be (( )).