

Line Measurement: Based Child Psychological Test using MATLAB

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ABSTRACT

The words 'test' and 'measurement', as used in psychology, are misleading because of the implied similarity to scientific measurements and medical tests. Conventional psychological testing is quite different from scientific measurements in natural sciences. When it comes to perception and specially comparing the preserved views of multiple people, it becomes extremely difficult to obtain a clear conclusion that who is perfect and to the point with the desired results. just take an example to predict the length of line drawn on a piece of paper it may be of any scaled length say 4cm but when we got to different people of different age group and ask for the length their view will be differing on a regular basic. As perception is highly individual dependent we can't say that one is right or wrong here every one is right in his con collusion because it is what he thinks is right and not is what in actual the results are here actual results refers to the scaled length. All results are implemented in MATLAB 7.0.

Keywords

Measurement, psychological, Line, length. And MATLAB

1. INTRODUCTION

1.1 Psychological Tests

The classification of a psychological test provided by Anastasia (1982) cannot be improved: A psychological test is essentially a pattern of behavior and attitudes is objective and standardized measures

1.2 Visual Perception

As the position of human eyes and the other different animal are in different on the head .they provide different views instantaneously. Cause of these different views eyes gain depth perception and estimate distances to objects with the help of brain which exploits the parallax and this phenomenon is called stereopsis.

Motion parallax is also used by animals .animals just move to gain different viewpoints. For example, pigeons (whose eyes do not have overlapping fields of view and thus cannot use stereopsis) bob their heads up and down to see depth. [5].

The motion parallax is exploited also in wiggle stereoscopy, computer graphics which provide depth cues through viewpoint-shifting animation rather than through binocular vision.

1.3 Distance Measurement

The principle of triangulation is a special case of distance measurement. Which states that in a network of triangles can be solved for all the sides and angles... if, in addition to all the angles in the network, it has measured the length of at least one side. Thus on the bases of the measurement of the line or base line can decide the measurement of whole network., the triangle is very long and thin, and it is measuring by both its shortest side (the motion of the observer) and the small upper

angle (always less than 1 arc second, [6] leaving the other two close to 90 degrees), It can determine the length of the long sides (in practice measured to be equal).

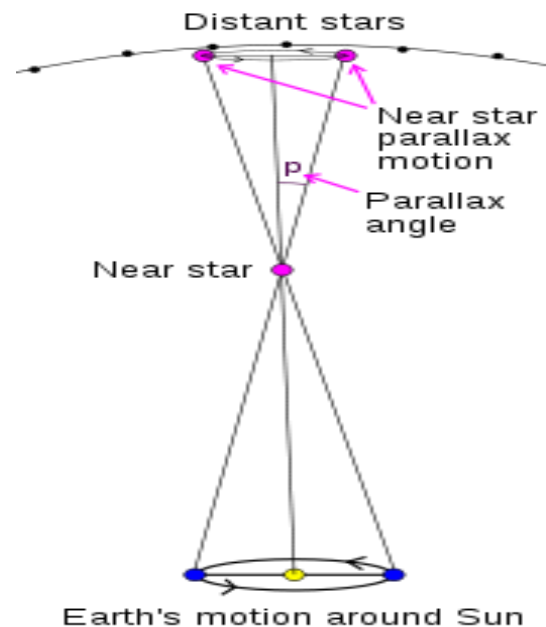


Fig 1: Distance Measurement

Let the angle is small (see the derivation below), the parallax {which is measured in arc seconds} is reciprocal to the distance to an object (which is measured in parsecs): $d (\text{pc}) = 1 / p (\text{arcsec})$. For example, the distance to Proxima Centauri is $1/0.7687=1.3009$ parsecs (4.243 ly). [8]

The finger Size which helps us Predict the Test Exam Results, Homosexuality, Cancer, melodic Ability and Hostile Personality – it shows in study

Your finger length can predict how you will do on several tests in school. It can be also told by them if you are likely to be homosexual or straightforward, if you will likely get certain cancers, be a musician, writer or a scientist, or if you will have a violent or inactive personality. The two slices that are important are the index finger -- the one you use to point to something -- and the ring finger [6].

1.4 Reading, Writing And Arithmetic

In a current survey from the help of online universities, measuring the length of these two fingers can be anticipating the results of mathematics and literacy (reading) tests for seven-year-old children. Some time we can do the measurement on the basis of finger length with one constraints i.e. length varies with age group.

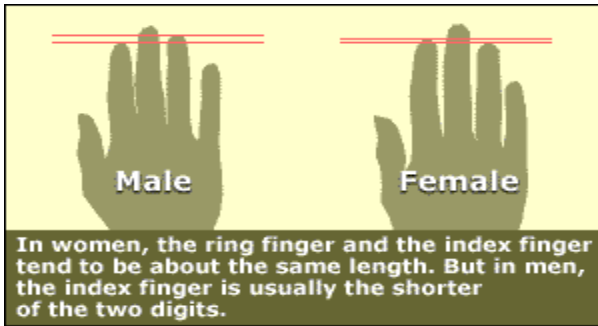


Fig 2: Length Measurement By Hand

In a study to be published in the British Journal of Psychology, scientists compared the finger lengths of 75 children with their standardized Assessment Test (SAT) scores. There was found a relation between their pointing finger and ring finger and a child's performance in numerically and literacy. It is believed by scientists that the relation is caused by different levels of the hormones testosterone and estrogen in the womb – and development of brain and finger length is effected by this. But there is nothing new, for several years it has been known by scientists that raised levels of testosterone -- or other hormones closely approaching testosterone --it can cause the brains of both males and females to be more "masculine."

It is known for a long time that girls are better in writing while boys do better in math test to girls

Dr Mark Brosnan [Head of the Department of Psychology at the University of Bath] said that Testosterone has been said to sponsor the development of the areas of the brain and testosterone are often related with spatial and mathematical skills, and Dr Mark who led the study.

"According to estrogen the most interesting thing is that these hormones are also supposed to say in the relative lengths of our index finger and ring finger and the same in the areas which are often associated with verbal ability.

"In our womb, we can use the measurement of these fingers to evaluate the relative exposure of these two harmones.and we have made known through this study and we can also use them to predict in different areas of numeracy and literacy.

2. PSYCHOLOGICAL TESTING

We are aware with devices used to measure physical characteristics: we can measure our body weight through the bathroom and the length of the body by the ruler. But what about psychological characteristics such as introversion/extroversion, attitude, or intelligence? For those characteristics, too, there are special devices used to measure them, called psychological tests. In fact, these are real measuring instruments, and are sometimes actually referred to as instruments [10].

To be of any value, psychological tests must have certain properties. In this paper I describe those characteristics and how we go about assessing them. After that, I review a selected sample of psychological tests [8-9].

3. PROPERTIES OF A GOOD PSYCHOLOGICAL TEST

- 1) Validity
- 2) Reliability
- 3) Standardization

- 4) possess good norms, i.e. be properly standardized (or fit similar models);
- 5) Be appropriate for the person's age, cultural, linguistic and social back-ground.

3.1 Try Your Own Experiment:

To encourage student participation in planning and conducting experiments, first provide Explore Time or Brainstorming Time. Because of their curiosity, students usually "play" with lab materials first even in a more traditional lab, so taking advantage of this natural behavior is usually successful. Explore Time can occur either before the Class Experiment or before the "Try Your Own Experiment" activity, depending on the nature of the concepts under study [8-9].

3.2 Scales of Measurement

Psychological tests assign numbers to, and yield, numerical scores. But the resulting numbers may mean different things depending on the nature of the scale of measurement. There are four basic scales of measurement, of which only two are applicable to psychological tests:

1. Nominal: This classifies subjects on mutually exclusive categories as in male–female, consultants–trainers–administrators. Nominal scales are discrete [10].
2. Ordinal: This represents position in the group and is ranked according to first, second, third, and so on, which gives the order in which individuals are placed but does not tell us how far apart the people in various positions are, e.g. as in ranking by height or weight.
3. Interval: This measurement uses equal intervals such as minutes, degrees (temperature), number of words recalled in a memory test or percentage scored in an exam. Intervals on the scale are of equal size, so that 10 to 15 minutes is the same interval as 20 to 25 minutes. For interval scales there is no true zero [10].
4. Ratio: These are interval scales with a true zero point. Most measurements of physical qualities such as height, weight, time and distance are ratio scales [8-9].

4. RESULTS

All results have been implemented MATLAB , in figure 1, Psychology tool have shown, there is two button first is based on line drawing measurement and second is based on draw the diagram and judge the psychology of the person with different age group.

When click on first button, figure 2 is open, there is three push button and one text button, when we click on start button, psychology intelligence test starts, there is a line length is 10 units from 0 to 10. There is no division in between, in the text box random number appear from 0 to 10, now person click on the line where he/she feel that this is a accurate, next second number generate and person again click on their perception, this test repeated ten time, results show in the lower space of the tool, this can be save in text file in current directory of MATLAB.

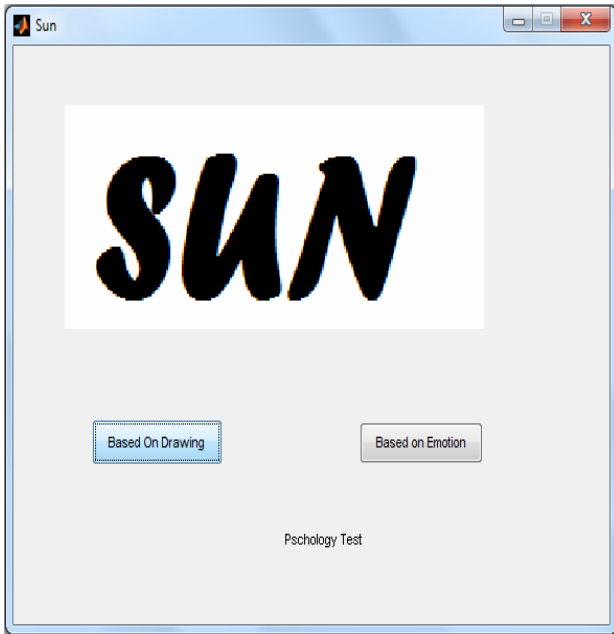


Fig 3: Psychology Tool

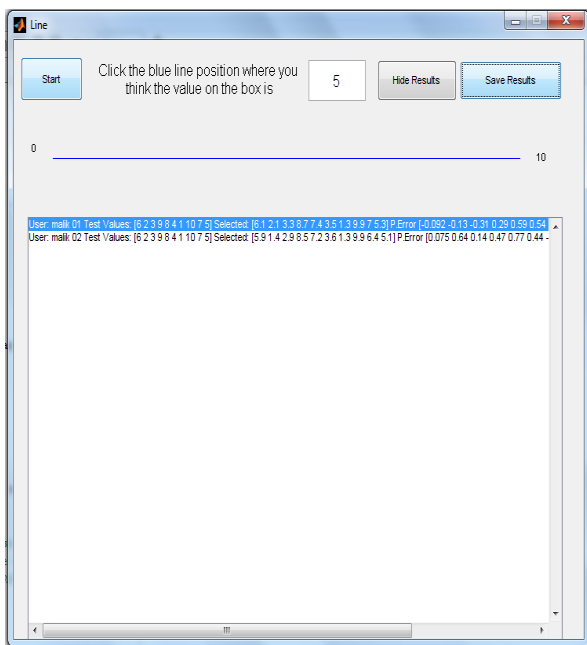


Fig 4: Length Measurement

When start the psychology test toll asks for the name of the users, we enter the name of user test shall start, two test cases are show and the respective errors are also show in below. Test value shown the real value and selected values are where we click on the line error is the difference between the test values and selected values. In the last S.error is the overall error, its shows that how much he/she is accurate for their perception.

User: malik 01

Test Values: [6 2 3 9 8 4 1 10 7 5]

Selected: [6.1 2.1 3.3 8.7 7.4 3.5 1.3 9.9 7 5.3]

P.Error: [-0.092 -0.13 -0.31 0.29 0.59 0.54 -0.34 0.075 -0.0083 -0.34]

S.Error: 0.028333

User: malik 02

Test Values: [6 2 3 9 8 4 1 10 7 5]

Selected: [5.9 1.4 2.9 8.5 7.2 3.6 1.3 9.9 6.4 5.1]

P.Error: [0.075 0.64 0.14 0.47 0.77 0.44 -0.27 0.092 0.63 -0.14]

S.Error: 0.285

Here two user malik 01 and malik 02 judge the length on the basis of their own perception , pshology tool also meaurmen the exact distance and compare with input data.

Find out the error between the real and input value in the last calculate the overall error of ten different output.

Standard error of user 1 malik01 is 0.028333

Standard error of user 2 malik02 is 0.285

Conclusion from the above is that the user 1 has more accuracy for measurement point of view; this kind experience is use for shooting person for better and accurate hit.

This type of experiment can be done by n number of people and can be judge the psychology.

5. CONCLUSION AND FUTURE SCOPE

In this paper psychology tool are shown which can be calculate the length of the line on the basis of perception of the person and find out the error between the actual and selected values, and also calculated how much perception of the person is accurate for the measurement purpose, in future this type of measurement is useful in the shooting range with air pistol, where shooter hit their target on the basis of their perception. In future this will be extended to check the psychology on the basic of drawing by the children.

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