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Assignment 10 Part 1

John Edwards's Paper - Separation of syntax and problem solving in Introductory Computer Programming

This paper focuses on how to help students learn computer science in a more efficient way that will reduce frustration that comes from learning the actual syntax of a language. Dr. Edwards refers to research that sees a high failure and frustration rate in students who are just learning computer science. He states that this isn't due to the actual logic and understanding of computer science but the frustration stems from the syntax of the language. He has worked on a program called Phanon that helps combat this. This program focuses on teaching students the syntax of the language before they even learn the use for that specific syntax. This way when they get to class the syntax is familiar to them and they can now focus their learning on the application of it.

In his research he has found similar programs that are attempting to teach syntax first. These often are still too complicated or take to learn for a beginner student. The Phanon program is different because it breaks down the syntax to very small chunks. Each problem takes under a minute to solve. For instance he will give the student a for loop with just one portion missing and ask them to correct that portion. Then he will give them another for loop with a different part missing. This slowly teaches the student about each different part of a for loop.

One issue with this paper is that their data set is very small. Although the results were very promising, more studying and data collecting needs to be done. The surprising thing to me was that the scores between students who used Phanon and those who didn't were still the same. What changed was the students time. Students who used Phanon spent nearly half the amount of time on their homework and projects as other students. This means that they spent less time debugging little syntax error and more time actually solving the problem.

An application I think would be interesting would be to use a similar approach to help people who are familiar with CS to learn a new language quickly. I would personally love something like that.

Dr Qi's Paper: Face recognition under varying illuminations using logarithmic fractal dimension-based complete eight local directional patterns

According to this paper, facial recognition is difficult to accomplish under illumination. This research is trying to find a process to manipulate the image in an attempt to more easily recognize the face. The proposed method in this paper seamlessly combines adaptive homomorphic filtering, simplified logarithmic fractal dimension, and complete eight local

directional patterns to produce illumination-invariant representations. This gave them success in the high 90's.

This paper combines many different types of image processing to get the result. There is an advantage to this because each separate filter will tweak the image in just the right way that the end result is recognizable. When describing these filtering techniques a lot of acronyms and filtering methods were used which made it a bit hard to follow for someone who isn't that familiar with this topic.

I think it would be cool to see this applied to other things besides just faces. If this method were applied to an entire picture would there be an improvement in a computer to recognize other things in the image?