



Trinity Christian School

A monthly newsletter regarding computer science, computer engineering, and cybersecurity

200 Trinity Way
Morgantown, WV 26505
www.tcsww.org
mfisher@tcsww.org

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Droid Jokes:

Q: What do you get when you cross a computer and a lifeguard?

A: A screen saver

Q: What do you get when you cross a computer with an elephant?

A: Lots of memory

Q: Where do all the cool mice live?

A: In their mousepads!

What does your faith look like?

When I program a computer, I know that machine is going to do exactly what I tell it to do. I am 100% confident the computer will follow every instruction no matter how foolish or wrong the instructions. This is fascinating to me and is probably one reason why I got so hooked on programming.

Having such faith in the computer warrants a need to make sure I program the machine the right way. As such I follow best programming practices and coding standards to increase the chances in writing good code. I'll still make mistakes but if I follow best practices, there is less of a chance of writing bad code. Remember, since I have faith that the machine is going to do what it is instructed to do I want to make sure I tell it the right things to do.

So, what does faith in God look like and what does it warrant from me? If I have so much faith in the computer that I modify my behaviors (i.e. follow best coding practices) to make sure I write good code, how should I modify my behaviors so I achieve good results in my faith and my relationship with God?

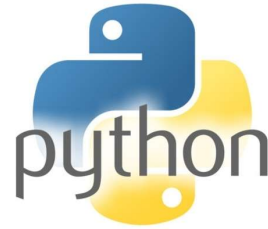
Faith to me is that trust, that complete assurance in what God is telling me. And what is God telling me? He speaks to me through what is written in the Bible and my faith can be seen by my obedience to the words written there. I should behave and act as instructed by the Bible because I know how God will respond. Since I have complete and utter faith in God, I know how I should be acting, right?

In reading the first chapter of Romans I find it fascinating that Paul says the whole world knows about the faith that is on display within the Roman church. The whole world is talking about their faith! Imagine someone describing you in such a way. How would your close friends describe your faith, how would your family describe your faith?

Think about what faith means and then consider how the outside world perceives and/or sees your faith.

Summer Coding Workshop

A 3-day workshop for students and educators on programming in Python. Attendees will learn the basics of data structures, problem solving, python language, development tools and the Pygame development modules.



Using a mixture of discussions and hands-on problem-solving, programming concepts will come to life as attendees will develop their video game utilizing the Pygame modules. Attendees will walk away from this workshop with a solid understanding of the python programming language as well as a fully functional video game that they design and code. Perfect for students wanting an introduction to coding, students wanting to mature their coding skills, or teachers/parents that want to learn how to code and offer coding at their home institution.

- June 28, 29, 30 (8:30 am – 3:30 pm)
- Computer required (not Chromebook)
- \$150 payable to TCS
- 6th grade – 12th grade and teachers and parents
- Contact mfisher@tcsww.org

Computer Science and Engineering Classes Offered at Trinity Christian School (TCS)

<https://tcsnv.org/out-of-this-world-computer-science-and-engineering-program/>

The goal is to inspire our students to reach for greater heights in computer-related fields as well as prepare our students in computer-related fields for life, work, and furthering their education. As such we offer classes in the middle and high school that build upon each other to fully cover the expansive discipline.

Our middle school classes begin learning specific technologies and learn computer programming in JavaScript and C/C++. Students get hands-on experience using Windows, Linux, and Arduino platforms. The students are introduced to electronics and robotics and begin working on more complex projects like robots, drones, rockets, and video games.

Our high school classes hone the student's skills and build upon what they have already learned. The students continue to learn C/C++ programming languages and will also learn the Python programming language. The students continue learning the Arduino platform for their electronics but are also introduced to the Raspberry Pi. Projects at the high school level continue with robotics, drones, rocketry, video games, with the addition of radio astronomy and spaceflight. The students also have an option in taking AP computer science which covers programming and problem-solving using the Java programming language.

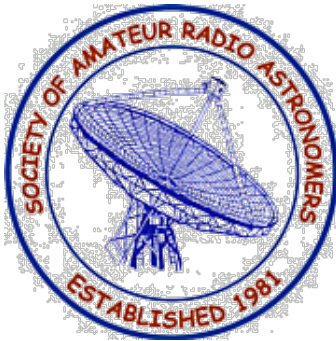
As a capstone to their curriculum the students master their cybersecurity skills. Knowing how digital systems are attacked is important but we also teach on how to build security into the systems they are building. The students work on a robotic project which entails building a robot that can navigate out of doors. They also compete in competitions in which other engineers and scientists try to hack the robots they built.

These classes are all offered in Trinity's new Advanced Makers Laboratory (room 210) where we have 24 workstations with various computing platforms (i.e. Windows, Linux, Arduino, Raspberry Pi, nVidia). The lab is also equipped with electronic workbenches, 3D printers, robotic kits, and spacecraft kits.

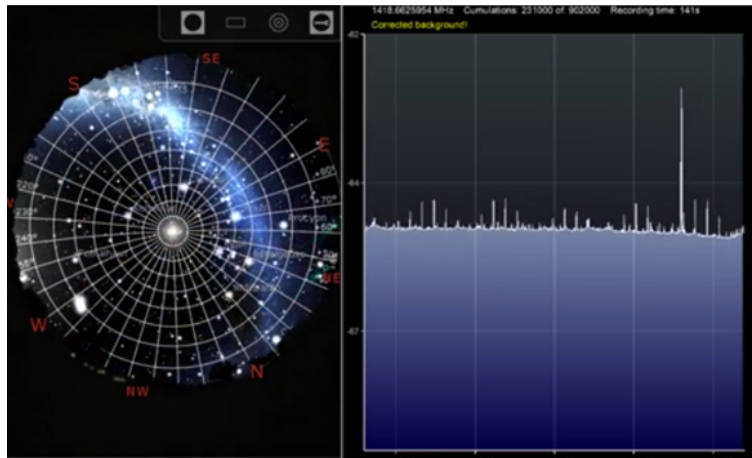


TCS Receives Grant from SARA

Trinity Christian School (TCS) was awarded a grant from the Society of Amateur Radio Astronomers (SARA). The grant covers the necessary hardware and software for building a hydrogen line radio telescope that will be mounted on the school and used in the computer science classes. The hydrogen line radio telescope is called "Scope in a Box" and is made available by the amateur radio astronomy group. The grant includes a 2.4 GHz parabolic grid antenna, RTL-SDR, Low Noise Amplifier (LNA), needed software, etc. The radio astronomy antenna will be able to detect the hydrogen line peak and doppler shifts of the galactic plane, which the students will study during the academic year as well as publish their scientific work.



The Society of Amateur Radio Astronomers (SARA) is an international society of dedicated enthusiasts who teach, learn, trade technical information, and do their own observations of the radio sky. This organization is a scientific, non-profit group founded for the sole purpose of supporting amateur radio astronomy. SARA was organized in 1981, and today has hundreds of members worldwide. The group consists of optical astronomers, ham radio operators, engineers, teachers and non-technical persons



Additional Reading

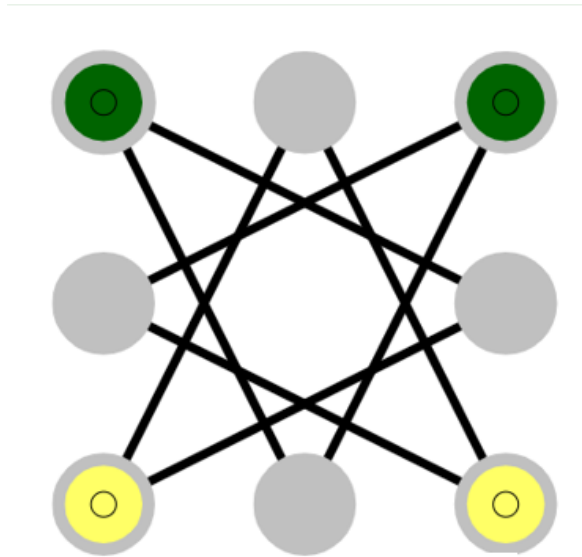
- Christianity and Computing from Calvin University <https://computing.calvin.edu/documents/christianity-and-computing.html>
- Artificial Intelligence: Discerning a Christian Response <https://www.asa3.org/ASA/PSCF/2019/PSCF6-19Schoorman.pdf>
- A Christian Perspective on Computing: One Person's View <https://computing.calvin.edu/documents/christian-perspective-on-computing.html>
- Technology and the Biblical Story https://digitalcollections.dordt.edu/cgi/viewcontent.cgi?article=2949&context=pro_rege
- A conversation on computer science and faith <https://jasonthacker.com/podcast/a-conversation-with-dr-derek-schoorman-on-computer-science-and-faith/>
- Connecting Bytes and Beliefs <https://www.youtube.com/watch?v=xYqc99idvWM&t=315s>
- How to Identify and Avoid Email Scams <https://www.oc.edu/blogs/cybersecurity/how-to-identify-and-avoid-email-scams>
- Justice Dept. Claws Back \$2.3M Paid by Colonial Pipeline to Ransomware Gang <https://krebsonsecurity.com/2021/06/justice-dept-claws-back-2-3m-paid-by-colonial-pipeline-to-ransomware-gang/>
- How to Tell a Job Offer from an ID Theft Trap <https://krebsonsecurity.com/2021/05/how-to-tell-a-job-offer-from-an-id-theft-trap/>
- World's Biggest Meat Supplier, JBS, Suffers Cyber Attack <https://grahamcluley.com/worlds-biggest-meat-supplier-jbs-suffers-cyber-attack/>

Potential Competitions and After School Computing Groups:

Congressional App Challenge	Members of the U.S. House of Representatives host district-wide Congressional App Challenges for middle school and high school students, encouraging them to learn to code and inspiring them to pursue careers in computer science https://www.congressionalappchallenge.us/
Cyberpatriot National Youth Cyber Education Program	Challenges teams of high school and middle school students to find and fix cybersecurity vulnerabilities in virtual operating systems https://www.uscyberpatriot.org/home
USA Computing Olympiad	Competition tests skills in areas such as algorithmic programming problems that can be solved using various programming languages. Students compete in three online contests, plus a national "US Open" competition. The top 24 contestants are invited to a training camp in the early summer, hosted at Clemson University. At the end of the camp, the top four participants are invited to attend the International Olympiad in Informatics (IOI). http://www.usaco.org/
Zero Robotics	Robotics programming competition where the robots are SPHERES (Synchronized Position Hold Engage and Reorient Experimental Satellites) inside the International Space Station ISS). The competition starts online, on this website, where teams program the SPHERES to solve an annual challenge http://zerorobotics.mit.edu/
Iron Warrior – Hack the Droid	Student teams across the region build rovers that navigate an obstacle course out of doors. In parallel, rival teams try and cyber attack the robots running the mission in order to keep rival team from earning points. This is a new competition started at Trinity Christian School.

Monthly Puzzles & Challenges

Challenge 1: Slide the colored circles along the entire length of the line and they rest on any gray circle. The objective is to move the green circles such that they replace the yellow and the yellow replace the green. Try to achieve the goal in the fewest amount of moves.



Challenge 2: Develop a JavaScript application that implements the game in Puzzle 1.

- Major Bonus Points and bragging rights for the summer if your game has autonomous play in which the computer solves the puzzle, even when the human configures the game differently (i.e. green circles and yellow circles start in different positions).

Challenge 3: What is wrong with the following code?

```
for (var i = 0; i<10; i++){  
    //do some really cool stuff here  
}  
console.log(i);    //what will the output be?
```

Challenge 4: Each hour of the day that you are awake you are to put God first. Think about God and ask what He wants from you each hour of the day. Keep a journal on whether you can do this every hour for three days. Create a graph on how well you put God first and see if there are particular times of the day that you struggle most.