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2a. The computational innovation I have researched is 3d printing. This was designed to break the limit of printing in 2 dimensions. It can also repeatedly print objects, from plane-sized to nail-sized. As long as the computer does not crash or the printer is not unplugged, anyone can easily print tons of objects, emphasis on easy. There are already lots of people 3d printing stuff, like car manufacturers, doctors, dentists, prosthetic companies, aircraft manufacturers, aerospace companies, prop makers, product designers, architects, students, design entrepreneurs, engineers, drone enthusiasts, shoe manufacturers, and consumer product makers. [1] There will be more as the 3d printers get more advanced and the demand increases.

2c. There are many pros and cons to 3d printing, but the major pro is easy cloning of computer-generated objects, and the major con is that 3d printers are hackable, and can have some major printing errors from some hacks. Some advantages to easily making of lots of objects are less labor costs, and ability to walk away to get a drink of water and still have production going. The disadvantage to being hackable is that if it gets hacked and you didn't realize it, major problems occur, such as incorrectly printed objects. This is especially bad if a company is mass printing an object, as the printer will continue printing those incorrect objects, and suddenly there's tons of incorrectly printed objects.

2c. However, being able to print 3 dimensionally affects society in many ways. For example, if and when cars get 3d printed regularly, it will make the market price go extremely low compared to what cars are now. This will force car dealers like Ford and Volkswagen to either 3d print cars, sell cars cheaper, or go out of business. The same thing could happen to the aircraft industry, in fact some planes and plane parts are already being 3d printed. This doesn't just affect these industries, if it can be easily 3d printed, 3d printing companies like 3D Systems [2] can take over that industry.

2d. When you set up a 3d printer to start printing from your computer, the 3d printer may install software onto your computer. This is normal. When you print the design, the computer will break the design into one-layer chunks that are then sent to the printer one at a time to be printed one layer at a time. When printing, the nozzle that dispenses the material heats up to melt the filament as it is pushed out. This is why some printers have a case around them so they don't burn you or start fires. Don't open it when it's printing, and definitely don't touch the nozzle.

2d. Although it may seem foolproof, these 3d printers are hackable. Thankfully, students at Georgia Tech have designed an anti-hack mechanism on the printer so that it can detect errors. For example, they have designed a sound sensor system that it will record the sound rhythm of the correct prototype and make sure the rest of the prototypes have the same sound rhythm. [3] Sadly, this only works when you are printing more than 1 object. But, they have invented others, too. For a second example, there are gold rods that the printer can dispense that a sensor will test for that they are in the right location. This is more reliable since you could modify the system to be based off the computer design instead of the first prototype.

1. https://www.3dhubs.com/what-is-3d-printing#basics
2. https://3dprintingindustry.com/news/publicly-traded-3d-printing-companies-38477/
3. https://newatlas.com/hacked-3d-printers/50927/