BIBLICAL TRAINING CENTER

February 25, 2018
Emerging Technologies and Christian Ethics
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Introduction

Scientists are saying EACH of these will revolutionize the world within our lifetime:
1. Genetics
2. Robotics
3. Artificial Intelligence
4. Brain to Computer Interfaces
5. Longevity

What should the Christian response be?

Christian Starting Point

1. There is one God and He is the Creator of all things (Gen. 1:1; Rev. 4:11).
2. Life did not evolve. Instead, each kind (species) was created after the pattern (form/idea) in God's mind.
3. Therefore, every created thing has a purpose and a place in God's natural order.

What follows is an ethical directive: We should not change creation to exist or operate in a way not intended by God. Technology that changes the nature of man is wrong. Technology which does not *essentially* change man's nature is acceptable. So, what are these essential properties that shouldn't be changed?

To answer, we must get philosophical: "*An essential property of an object* is a property that *it must have*, while *an accidental property of an object* is one that it happens to have but that it could lack."[1]

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[1] Stanford Encyclopedia of Philosophy, s.v. "Essential vs. Accidental Properties," https://plato.stanford.edu/entries/essential-accidental/ (accessed February 24, 2018).

Essential Properties of Humans

(The below is what it means to be "in the image of God.")

Rational	We can **reason** and **think logically**.
Moral	Inner **sense of right**/wrong.
Spiritual	Created as both material and **spiritual beings.**
Eternally Minded	**Awareness of future** beyond death.
	(God "has put eternity into man's mind." Eccl. 3:11)
Linguistic	Use of **abstract language** (universals).
Cultural	We are **creative** and inventive.
Emotional	We show **complexity of emotions** (far greater than animals).
Relational	We are **relational creatures** (we need/have deeper community).
Stewards	Humans were given the **mandate to rule** over God's creation.
	(Gen. 1:26; 9:2; Psa. 8:6-8).
Post-Fall: Death	Although originally designed to not die, human body now has been **limited to 120 years** because of Fall/sin (Gen. 6:3).

Following our ethical directive, any new technology which does not essentially change man's nature is acceptable, while those that affect any of the above would be wrong. Each new technology will be reviewed accordingly.

Genetic Engineering

Overview
- Life is based on DNA which has same characteristics as a programming language.
- This language can be modified (CRISPR).
- Already doing this: starting with mixing genes of different animals (cats with jellyfish).
- Synthetic biology: creating new life forms.
- Stem Cell Regeneration:
  - Growing ears on back of mice.
  - Full-sized beating human heart.

Acceptable:
- Using non-fetal stem cells to grow body parts for transplanting into humans.

Wrong:
- Must remember God created creatures "after their kind." Mixing is unnatural (likely does not follow God's purpose for creation).
- Any change to humans which removes essential human properties would be wrong (free will, ability to have free conclusions)
- Virtually all scientists recognize dangers. Probably safe to not edit the code at all! Even non-Christian environmentalists say would be tragic to upset balance of nature.

- Genetic engineering involving killing/discarding human fetuses is wrong.
- Creating human/animal hybrids would inevitably result in suffering which is wrong.

Robotics

Overview
- Robotics poised to revolutionize workforce.
- Will replace 800 million global workers by 2030.

Examples of Advances
- Robotic vacuums
- Factory automation
- Paraplegic exoskeletons & stair climbing wheelchairs
- Delivery bots
- Full humanoid robots

Acceptable:
- Robotics good as tool for people with lost limbs, legs, taking care of elderly, etc.
- Automation in business can be good (as long as they don't put everybody out of work!).

Wrong:
- Humans must not lose dominion over earth given to them by God (Gen. 1:26). Many technologists are giving dire warnings about building robots with super-intelligent A.I.
- When people start putting guns on them they must be programmed to know right/wrong (ethics). Programming morality is worrisome because it puts decision to kill in hands of a computer.
- Inevitably will be hacked or programmed for evil (computer viruses are a good analogy).

Artificial Intelligence

Overview
- A.I. means computers that can learn and/or simulate human thinking.

Advances
- 1996 – IBM's Deep Blue programmed to play chess. First time computer defeated reigning world champion chess master.
- 2011 – IBM's Watson defeated humans on Jeopardy (the two best human players).
- 2015 – Google's AlphaGo AI first defeated professional Go human player (defeated world champion in 2017).
- 2017 - Google's DeepMind AI _taught itself_ chess in 4 hours!

Acceptable:
- When used as a tool A.I. can be very helpful (Siri, Alexa, Google Assistant, Cortana).

Wrong:
- Some people want A.I. to attain godlike wisdom—the result would be unassailable power for the one with control of the super-human intelligence (c.f., idea of war in James 4:1-2).
- Tyrants could leverage A.I. for conquering nations. *Vladimir Putin: "Artificial intelligence is the future, not only for Russia, but for all humankind… whoever becomes the leader in this sphere will become the ruler of the world." (2017)*
- We could destroy ourselves. By combining A.I. and weaponized robots, mankind faces its "biggest existential threat" (Elon Musk).

Brain to Computer Interfaces

Overview
- Ability to read data *from* and write data *to* the brain.

Advances
- 1998 – First brain implant.
- 1999 – Visual data out from cat brain.
- 2007 – Remotely controlled a pigeon.
- 2008 – Monkey controls robotic arm with mind.
- 2014 – Memory of maze uploaded to mouse.
- 2017 – Musk announces Neuralink: brain-to-brain telepathy to bypass language.
- 2017 – DARPA announces similar program.

Future Direction
- Full brain-to-brain integration with Internet.
- Ability to upload mind to computer.

Acceptable:
- Controlling prosthetics, giving sight to blind.
- Instant education, learning new skills.
- Helping people have better memory, think better.

Wrong:
- Security. Computers *always* at risk from hackers. Imagine brains connected to internet!
- Privacy. A concerns with Google, Facebook.
- Addiction. Gaming addiction already a problem.
- Porn. Porn has skyrocketed with technology. Makes sin easy to access.
- Brings a unity that likely goes against God's will (i.e., tower of Babel; Gen. 11:6).
- Futile to try to escape death (see next).

Longevity

Overview
- It's the goal of extending human life 100 years, 1000 years, and ultimately to live forever.

How Some Plan to Achieve? By combining all the above technologies.
- Improving humans by editing DNA.
- Replacing older organs with ones grown from stem cells.
- Replacing organs with longer-lasting robotic parts.
- Nanobots to repair cells.
- Uploading brain into computer.

Acceptable:
- Extend life by few decades, perhaps even hundreds of years.

Wrong:
- Trying to eliminate death is futile and misleading (it's an attempt to circumvent need for salvation). People cannot escape judgment (Heb. 9:27; Rom. 2:5-6) and Jesus' second coming (2 Thess. 1:7-10).
- It's contrary to Christian worldview: we should view death as gateway to resurrected/immortal body (1 Cor. 15).

Bibliography

Geisler, Norman L. *Christian Ethics: Contemporary Issues and Options.* 2nd ed. Grand Rapids, MI: Baker Academic, 2010.

Grudem, Wayne A. *Systematic Theology: An Introduction to Biblical Doctrine.* Leicester, England; Grand Rapids, MI: Inter-Varsity Press; Zondervan Pub. House, 2004. 442–449.

Class Schedule

Guidance on Making Moral Choices

DONE   Understanding Morality
DONE   Making Ethical Decisions
DONE: Emerging Technologies
Mar. 4:   Abortion
Mar: 11:   War and Morality
Mar. 18:   Sexual Ethics

If you know somebody who would be blessed by this class, feel free to invite them; visitors welcome at any time!

Where: Sundays second service (10:45AM) in the upstairs chapel building room C-205B