



ECE 3080

**Ethics in  
Electrical and Computer Engineering**

**Lecture #14: Cautious Optimism and  
Moral Leadership**

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# Cautious Optimism

- Attitudes about technology
  1. Pessimism (negative, hate technology, feel it is out of control - autonomous)
  2. Optimism (love technology, only good to come from it, or can solve all problems)
  3. Realism (realism about power of technology)
  4. Contextualism (moral ambiguities in technology, impossible to assess good)
- “Cautious optimism” (mixes 2 and 3) is a typical engineer’s attitude...



## Example: Cautious optimism about the Internet

- The internet - good or bad?
- **Bad:** Privacy invasions, porn, scams, viruses, etc.
- **Good:** Communications, democracy/liberty, productivity/efficiency, education, creativity, etc.
- Early in internet history it would be good to see not only the bad, but the good that could come from it! And, for engineers to guide the public!



# Technology - value-laden or value neutral?

- **Value-neutral perspective:** Technology can be applied to good or bad... the key issue is the wisdom in the application of technology
- **Value-laden perspective:**

Our **values** lead to... - **Technology**

Efficiency - **Computers**

Security - **Military**

Entertainment/story-telling - **TV, radio**

Communications - **TV, radio, phones, computers**

- Engineers have a key *leadership* role to play!



# Moral Leadership, Approaches...

- Professional societies
  - Codes, licensing
  - NSPE National Inst. for Engineering Ethics
  - IEEE Society on Social Implications of Technology
- Example: Should NSPE+IEEE+... push for licensing of all engineers and then mandatory continuing education? Raise the professional level?



# Recommended Further Reading: Social Justice (see class web site)

- Religious: Catholic, other Christian, Jewish, Muslim, Buddhist, Confucian, Hindu, etc.
- Secular: John Rawls “justice as fairness”, Amartya Sen’s “Idea of Justice” (technologies extend capabilities, capabilities define human welfare)
- Motivation, rationale, focus, and goals for the engineer (creating technologies for removing injustices, promoting justices)
  - Poverty/underdevelopment
  - Corruption, human trafficking, drug trafficking, etc.



# Community Leadership

- Do engineers have special responsibilities as citizens, beyond non-engineers?
- Doctors expected to speak out on health issues.
- Lawyers expected to speak out on legal issues.
- *Should engineers speak out on technological issues?*
- What about for social debates on safety?
- **Public obligations....** Nice if there were more engineer politicians? Better to have lawyers or engineers setting technology policy?



# Ideals of voluntary service

- Should the engineering profession encourage pro bono services?
- Long-encouraged in medicine, law, education
- Engineers have a right to do volunteer work
- If fully committed to public/common good, it should be encouraged...



# What can you do?

- OSU Engineers for Community Service (ECOS)
  - ... see their web site...
  - Do a service project
  - Take course on Humanitarian Engineering
- Senior design projects
  - Water purification
  - Electricity generation
  - Communications, computers
- Local community
  - Databases for.... foodbank, etc.
  - Tutoring, math and science



## Closing thoughts...

- Professionalism is a life-style, and it can be developed over your entire career.
- After you retire, if you tell your grandchildren about your career, will you be proud to explain what you did?
- You want to be able to look back on your professional career and be happy with what you achieved; hence, make ethical decisions so that this will be the case!



# Attendance Question

- 1. What was the single issue/topic that most influenced your views that was covered in this class?**
- 2. Did you have any fundamental/significant/major disagreements with the ideas/approaches of engineering ethics as taught in class? If so, please identify what you disagreed with via a short sentence or two. If you had no fundamental/significant/major disagreements, simply answer "no."**

**Please:** Put your name on a sheet of paper and turn it in...