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Do Good and Avoid Evil…
and why that is complicated in computing

Don Gotterbarn

- Presenter
- ACM Committee on Professional Ethics

Keith Miller

- Moderator
- University of Missouri - St. Louis

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Talk Back

- Use the Facebook widget in the bottom panel to share this presentation with friends and colleagues

- Use Twitter widget to Tweet your favorite quotes from today's presentation with hashtag #ACMWebinarProf

- Submit questions and comments via Twitter to @acmeducation – we're reading them!

Do Good and Avoid Evil…
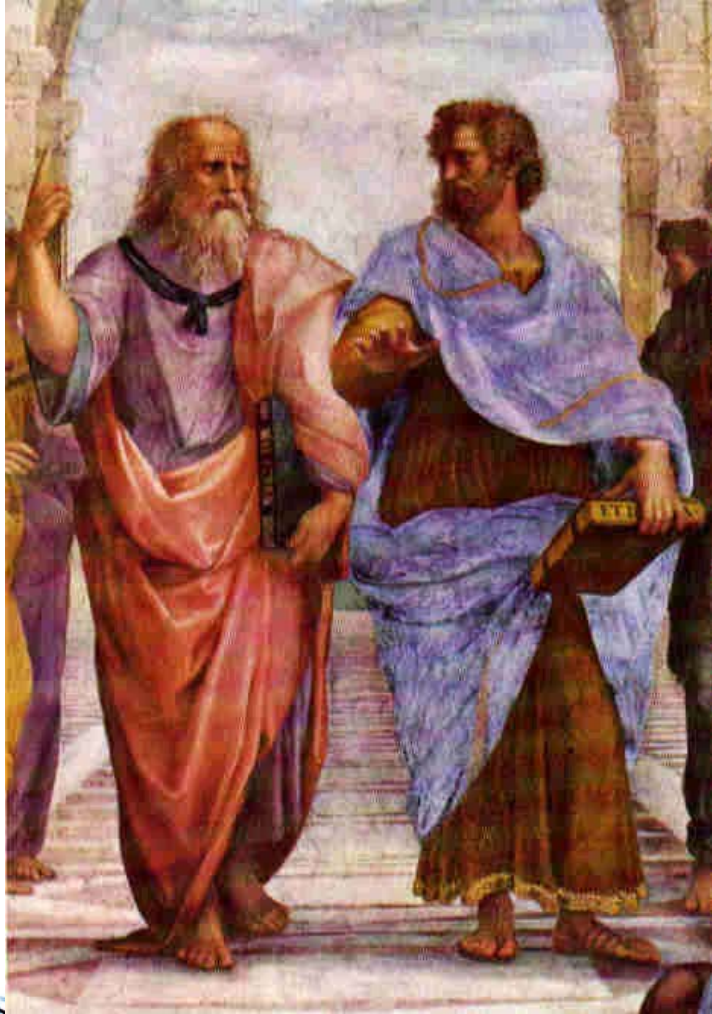# and why that is complicated in computing

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Greek Geeks?

Positive Professionalism

Limits to Problems solving

Working as Positive Computing Professionals

Professional Responsibility:

- *"Profess" -> "Professional"…Medieval Roots*

  - *Special Rights and Responsibilities*

- *As citizens:* have values/ethics they share with everyone

- *As professionals:* benefit others, improve situation; Higher Order of Care

- *As Computing professionals, in particular:* practices unique to the profession

Professionalize Computing…
International Interest

- A Cottage Industry
  - Professional associations
  - Multi-national organizations
  - 10 States in the USA are pursuing licensing
- Why the interest?   ubiquitous computing
  - Miscreants –
    - rule of law
  - Skill less/incompetent braggarts
    - certification, licensing
  - Competent Slumlords

The Fog of Punishment

Higher Order of Care: Service

- **ACM "Ethics is fundamental to professionalism…"**
  - **Ethics** (DG)
    - Behavior with a **POSITIVE or Negative** impact
    - Must not inflict unjustified **"HARM"**
      - life, happiness, autonomy, freedom, security, resources, knowledge, opportunity …

- **"ACM is dedicated to:…**
  - **promotion of the *highest* professional ethics standards.***
    - * http://www.acm.org/about/code-of-ethics

Why are there Still Problems?

- Some problems are caused by Good People
  - Therac 25

Professionalism as Competent Creation

- **Knowledge, skill in meeting the customer's requirements – Not "Harm"**

- **Agency-** Let me know what you want
  - Great applications, efficient systems
    - Fascination with new and technically exciting projects
    - Purely Efficient Technical Solutions:

- **Who is affected by this process?**
  - **Stealth problems-Transformation**
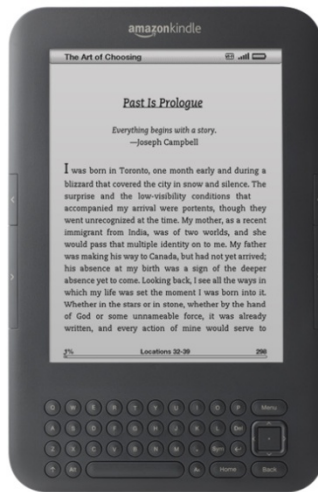
The Grocery Line: Transforming Social Structures

The Agency Model-
Two Common Flaws

- I can do whatever project you need! Technical work is value free,
  - Facebook automated cards
- **1. Professional responsibility** mistakenly secondary to technical aspects of client's request
  - **Theft**
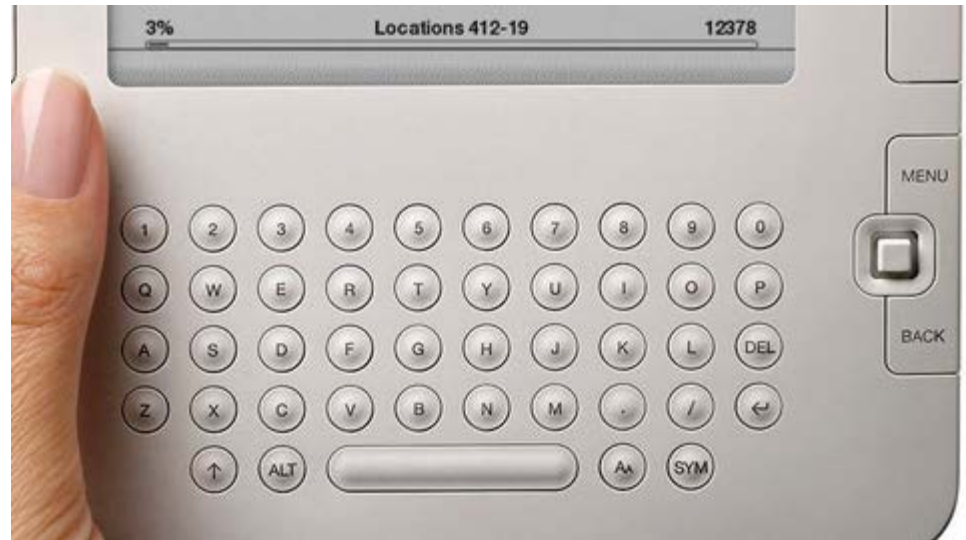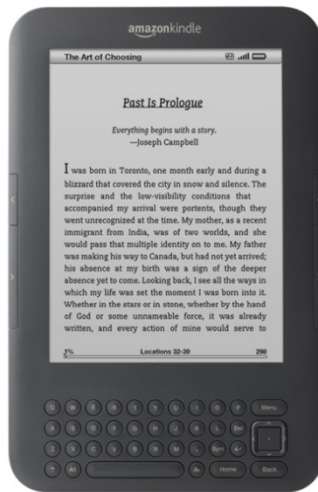- **2. The system is delivered independent of a consideration of its contexts of use.**

My First E-Reader

- The Gift of Accessibility

What is the problem ?
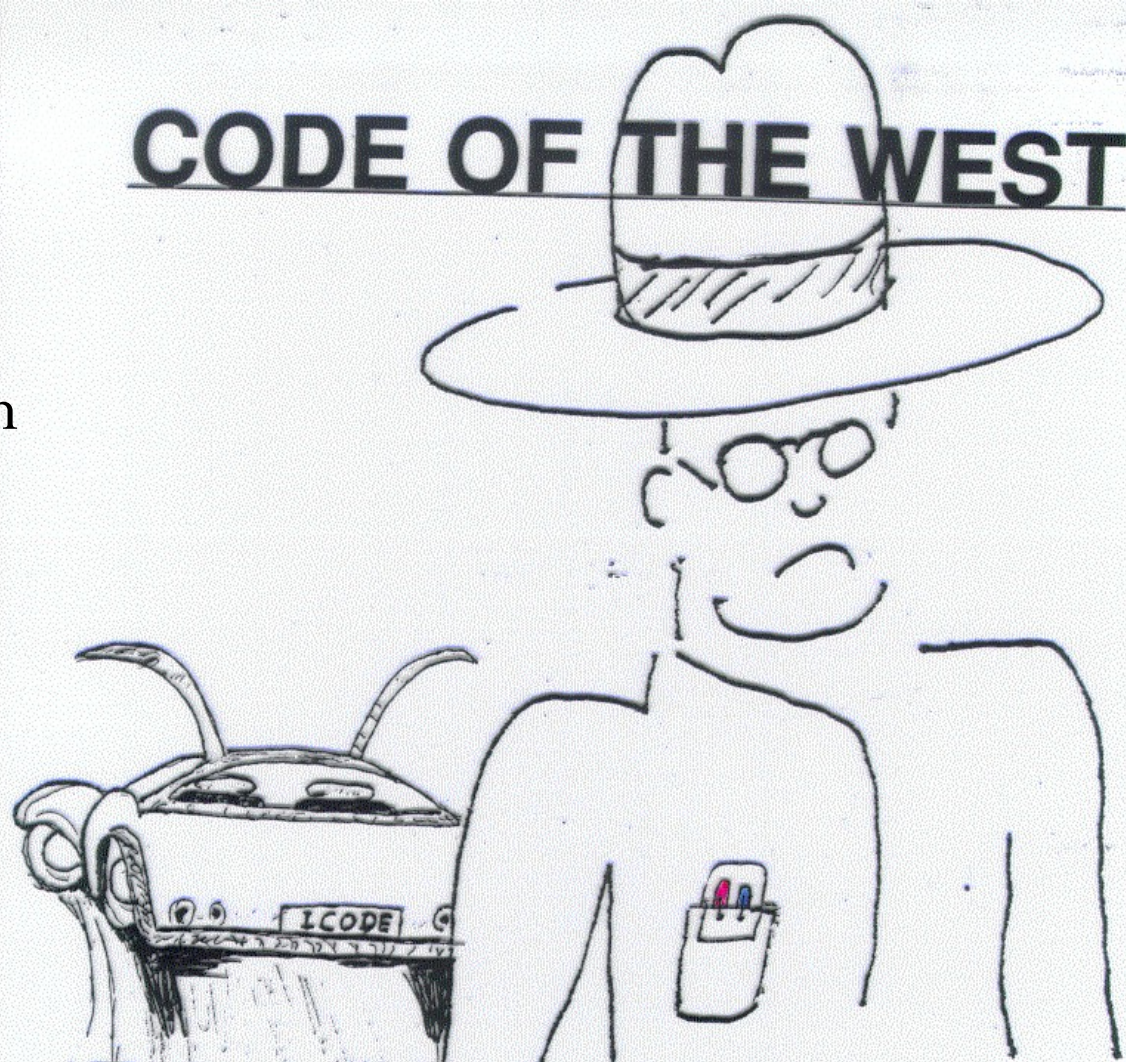
- The Gift of accessibility !?!
  - accessibility

Paternalism

…the new marshal in town

CODE OF THE WEST

Tell me what you want and I'll ~~take care of it~~ code it -- MY way!

The Grocery Line:
Making it better

> ⌂ Introduction to Programming ❯ Talking to your computer
>
> ## Congratulations!
>
> Congratulations, you have just completed module one of Introduction to Programming!
>
> In this module we covered the following topics:
>
> - Variables
> - Strings
> - User input
>
> Click on the red arrow to go on to the next module...

"Computer science is just learning how a computer works and how it thinks."

🏠 Introduction to Programming ❯ Talking to your computer

Congratulations!

Congratulations, you have just completed module one of Introduction to Programming!

In this module we covered the following topics:

- Variables
- Strings
- User input

Click on the red arrow to go on to the next module...

right

Positive Professionalism – Fiduciary Model

- Recognition that developer **and** client knowledge is important

- Technical skill **and** a higher order of care.
  - Context and extended stakeholders
    - Review and identify who is impacted positively or negatively .
  - Includes a broad obligation to society.

- "We can describe a professional as one who does what the client wants when it is appropriate, but who does the right thing always."

Approaches to problem Solving affecting Positive Professionalism

- **Self-Image**

- **Conceptually Bounded**

- **Ethically Bounded**

  - not aware dealing with an ethical issue (stealth)

  - *not MALICIOUS* or intentional

    Attention to something else

    - Discount the future

    - Moral disengagement

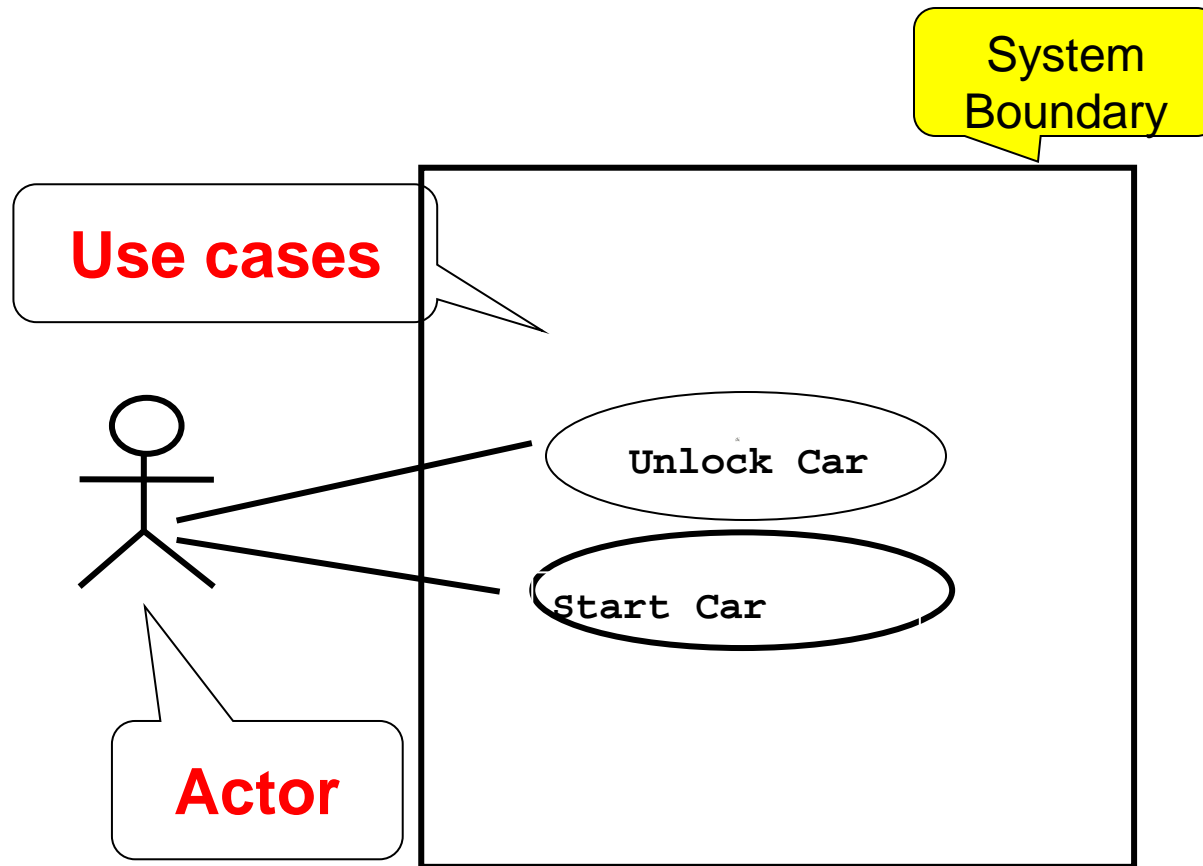# Approaches to problem Solving affecting Positive Professionalism

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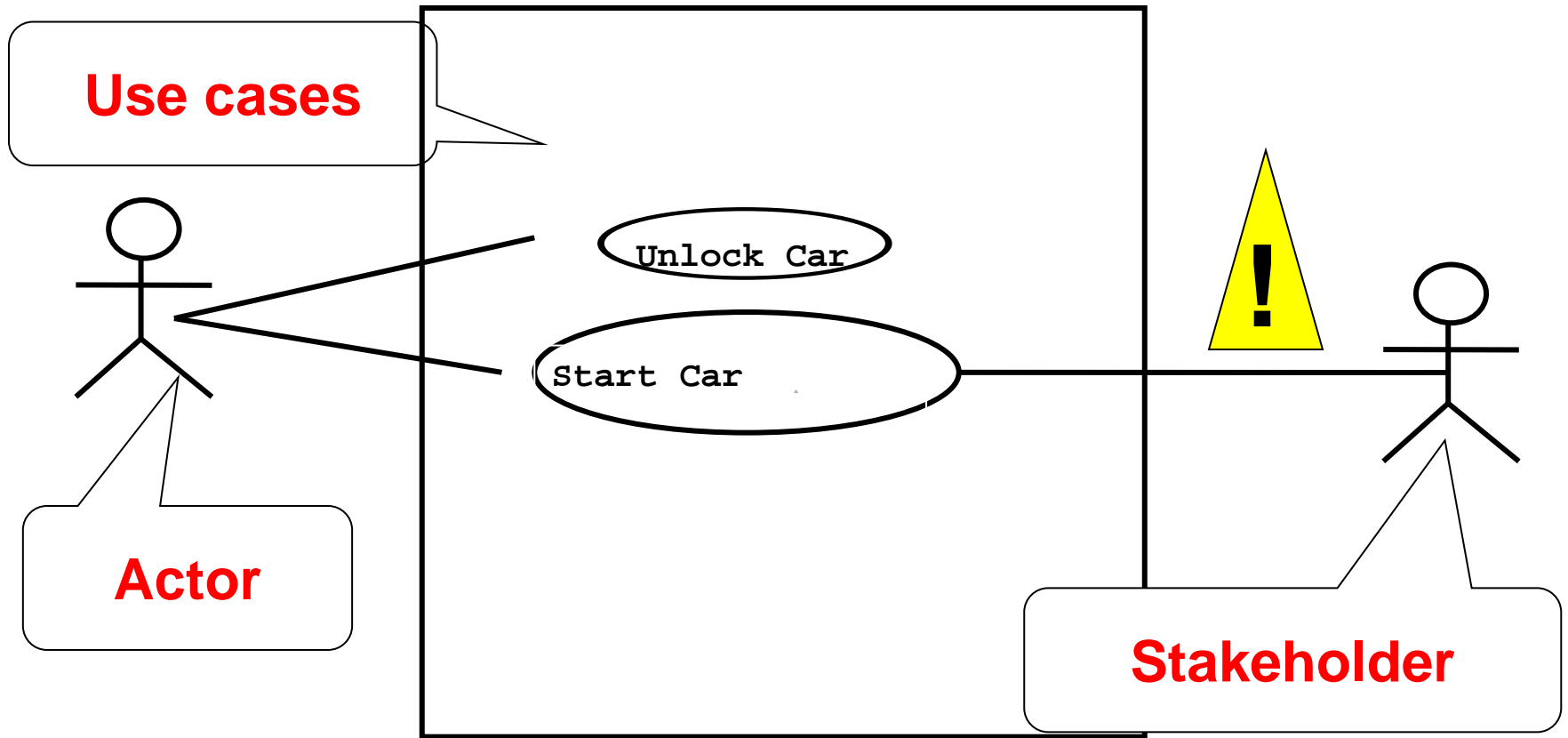   - Moral disengagement

Frame Change

- Context in which we are acting
  - Recycling- good for planet / profitable
  - Role- Manager or engineer – Challenger
- Goals associated with each frame
  - business frame goals
  - ethics frame goals
- Focus on one frame's goals, and other frame's goals completely fade

The Unified Modeling method

Things to Do

- Reframe Questions
- Ask Proactive questions and document your ethically significant decisions.
- Commit to doing more than merely meeting the customer's requirements. – re commit, re…
- Make ethics part of job performance reviews.
- Adopt ethics analysis techniques and tools
  - Socio-Technical Integration Research (STIR)
  - Software Development Impact Statements

- **Focus on both the technical and social aspects of our socio-technical work**.

Consider Extending Stakeholders

- Minimal set of questions: Ask Whose…
  - …behavior and work process will be affected?
  - …circumstances or job will be affected?
  - …experiences will be affected?

- Project types affect who are stakeholders
  - Education: teachers, students, parent, taxpayers
  - Scientific : researchers, funders, study subjects

Analysis of Potential Impact

- For each of stakeholder identified, consider how your proposed solutions might affect them.

- There are usually a variety of feasible solutions. Select the solution which does the least harm to core values.

- Two goals:
  - Avoid Evil.
  - Do Good.

Ethics Codes Provide Direction

1. Consider fundamental principles, rather than blind reliance on detailed regulations.
2. Consider broadly who is affected by your work.
3. Are you treating other human beings with respect?
4. How will the least empowered be affected by your decisions?
5. Concern for the health, safety and welfare of the public is primary.

Professional Ethics is not about us

- It is about the impacts our well chosen actions have in the world.

- *As a computer professional … my concern is very personal … The questions are very practical: not "What is done?" but "What should we do?"* – Terry Winograd

- Your decision to ignore these concerns is an ethical decision.

QUESTIONS

The Pledge of the Computing Professional

- – I am a Computing Professional.
- – My work as a Computing Professional affects people's lives, both now and into the future.
- – As a result, I bear moral and ethical responsibilities to society.
- – As a Computing Professional, I pledge to practice my profession with the highest level of integrity and competence.
- – I shall always use my skills for the public good.
- – I shall be honest about my limitations, continuously seeking to improve my skills through life-long learning.
- – I shall engage only in honorable and upstanding endeavors.
- – By my actions, I pledge to honor my chosen profession.

- http://www.computing-professional.org/oath.html

Resources

- ACM Codes of Ethics:
    - http://www.acm.org/about/code-of-ethics
    - Http://www.acm.org/about/se-code
        - Translations of SE Code http://seeri.etsu.edu/Codes/default.shtm
- "Using the ACM Code of Ethics in Decision Making" http://www.acm.org/about/p98-anderson.pdf
- "The Public is the Priority: Making Decisions Using the Software Engineering Code of Ethics," D. Gotterbarn and K. Miller, June 2009 *Computer* (vol. 42 no. 6) pp. 66-73
- "Unmasking your Software's Ethical Risks," D. Gotterbarn and K. Miller, *IEEE Software* Jan/Feb 2010
- W. R. Collins, K. Miller, B. Spielman, and P. Wherry. " How good is good enough? An ethical analysis of software construction and use." *Communications of the ACM*, Vol. 37, No. 1 (January 1994), 81-91.
- Ad Hoc Committee for Responsible Computing. Moral Responsibility for Computing Artifacts: Five Rules, Version 27.
- https://edocs.uis.edu/kmill2/www/TheRules/
- "Just Consequentialism and Computing," J. Moor, *Ethics and Information Technology,* Jan. 1998, pp. 61-65.
- "Black and Blue Epiphany: The missing elements of professionalism", D. Gotterbarn *Inroads* 2002 December
- http://cns.asu.edu/research/stir/publications
- http://www.softimp.com.au/sodis/index.html
- http://www.computing-professional.org/oath.html

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Critical Points

- Computing Professionalism has positive impacts
- Computing should provide a service and improve the situation for system stakeholders
- A Professional conscience is expressed in Codes of Ethics
- Some problem solving techniques mislead us.
- Being a Professional requires more than technical skill and competent creation
- There are standards of judgment and tools to help in the grey areas of ethics.