

# Teaching ethics to teachers and engineering students

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*Walking a tightrope between puzzle-  
solving and despair*

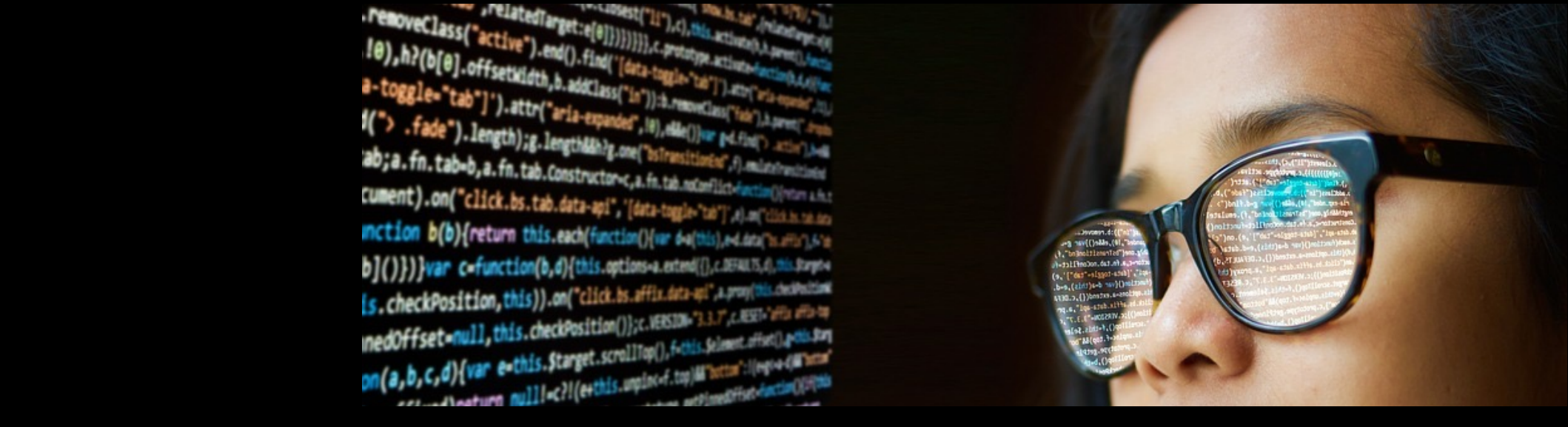


# Context:

A course in ethics or a series of modules in a program

# Ambition:

1. Be able to contribute to solving (or starting to solve) moral problems,
2. in a transparent and well-reasoned way,
3. where they are reasonably confident in their proposed solutions



Puzzle solving

# Should we edit the human germline?

- i. Apply normative theories e.g., teleology, deontology, virtue ethics
- ii. Try to find the relevant empirical material
- iii. Describe the solution

Not confident



Complete  
detachment

Unreasonably confident

Despair



# Should we modify the human germline?

- i. Apply your own reasoning
- ii. Try to find the relevant empirical material
- iii. Describe the solution

The image features three overlapping white directional signs mounted on a dark grey post. The signs are set against a light blue background, which is itself within a larger blue frame. The top sign is a pentagon pointing right, the middle one is a rectangle pointing right, and the bottom one is a pentagon pointing left. The text is centered on each sign in a black, sans-serif font.

Abandonment, poor  
reasoning, not  
transparent

# My way

- Enablers
  - SIMPLE tools in argument analysis/decision analysis
  - Helps them to devise and develop their own arguments
- Sprinkle with moral theories etc.

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## Don't edit the human germ line

Edward Lanphier , Fyodor Urnov, Sarah Ehlen Haecker, Michael Werner & Joanna Smolenski

*Nature* **519**, 410–411 (2015) | [Cite this article](#)

**6400** Accesses | **278** Citations | **1913** Altmetric | [Metrics](#)

**Heritable human genetic modifications pose serious risks, and the therapeutic benefits are tenuous, warn Edward Lanphier, Fyodor Urnov and colleagues.**



Credit: Shutterstock

It is thought that studies involving the use of genome-editing tools to modify the DNA of human embryos will be published shortly<sup>1</sup>.

There are grave concerns regarding the ethical and safety implications of this research. There is also fear of the negative impact it could have on important work involving the use of genome-editing techniques in somatic (non-reproductive) cells.

Enablers

- Q: Should we edit the human germline?
- Is the thesis clearly and precisely stated?
  - “The five questions”: Who? What? How? Where? When?
- Do we have reason to believe that the thesis is true (or reasonable)?
  - Truth, relevance, and Hume’s law

T: We should not edit the human germline now

**P1:** Editing the human germline now would lead to risks for future generations

**P1P1:** Today's editing techniques often lead to off-target mutations, mosaicism (etc.)

**F1P1:** It is always morally wrong to put future generations at risk

# Decision support

Q: Should we edit the human germline?

1. Who is (are) the agent(s)?
2. What are the options/actions?
3. What are the consequences from these actions?
4. Who is affected by these consequences and how?
5. What are the relevant normative considerations?



# Summing up

- Ambition: Solving moral problems, in a transparent and well-reasoned way, with reasonable confidence
- Problems: puzzle solving/despair
- Possible solution: enablers



Thank you for  
listening!

