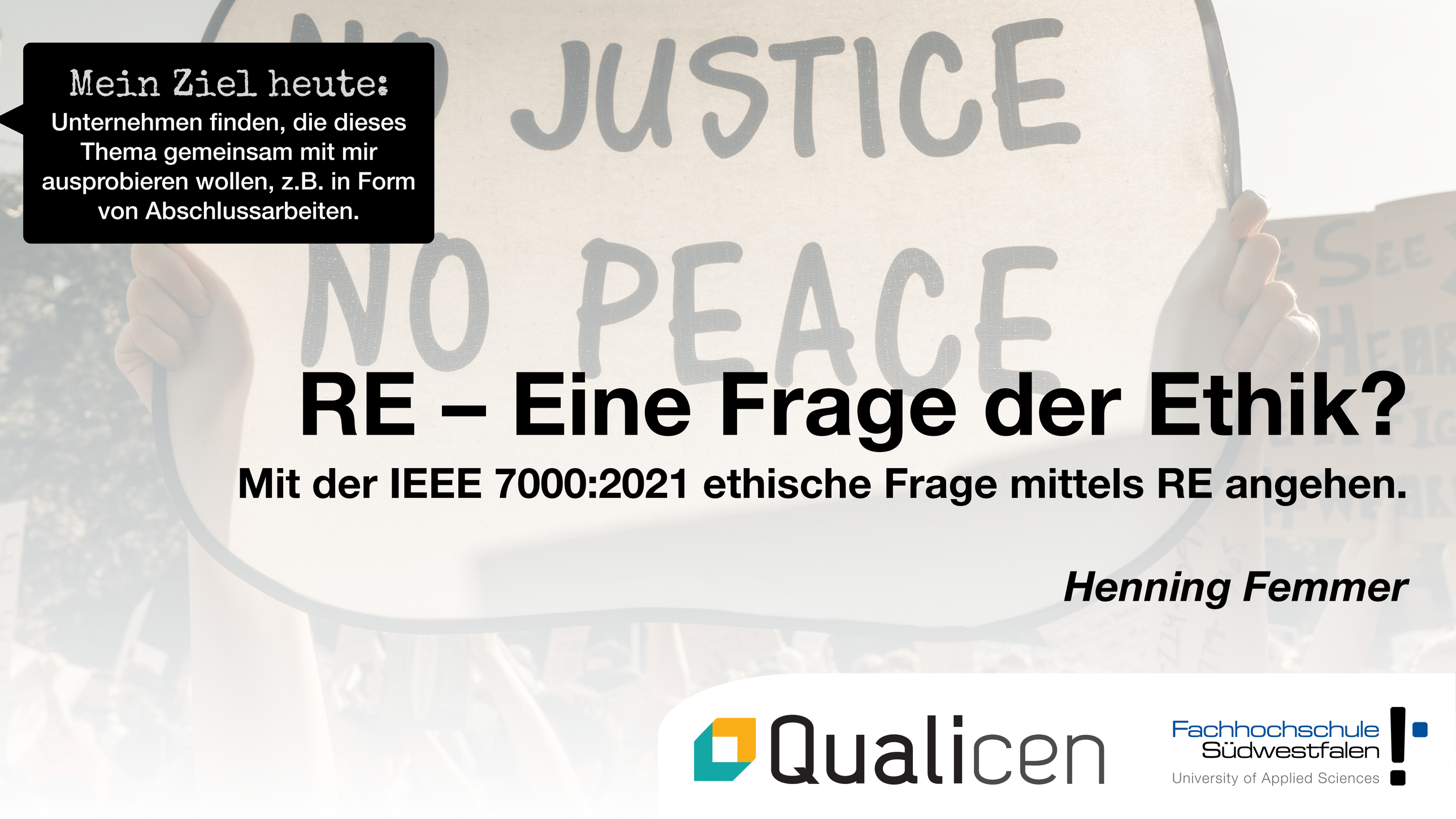


Mein Ziel heute:
Unternehmen finden, die dieses Thema gemeinsam mit mir ausprobieren wollen, z.B. in Form von Abschlussarbeiten.

RE – Eine Frage der Ethik?

Mit der IEEE 7000:2021 ethische Frage mittels RE angehen.

Henning Femmer

Qualicen

Fachhochschule Südwestfalen
University of Applied Sciences

Trotz ChatGPT-Fokus: Microsoft löst Team für verantwortungsvollen KI-Einsatz auf

Bei Microsoft war lange ein Team dafür zuständig, den Einbau von KI-Technik verantwortungsvoll zu gestalten. Ausgerechnet jetzt wurde es aber ganz aufgelöst.

tschlandfunk

dann die Ethik?

chen Hilfe bei Seminararbeiten und
igenz wird damit auch hier alltagstauglich.
haft hat, wird später diskutiert. Aber ist das

IEN POLITIK ÖKO GESELLSCHAFT KULTUR SPORT BERLIN NORD WAHRHEIT

u schnell“

es Deutschen Ethikrates. Was müssen wir im Umgang mit künstlicher
gehört ChatGPT verboten?

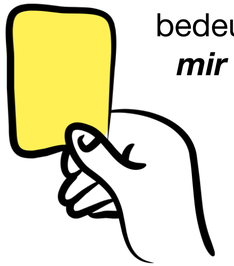
Moral: Verhalten des Einzelnen

Ethik: Diskurs der Moral

Gesetz: Fixierung (und Durchsetzung) der Moral

As a google user,
I want to be able to play a Les-Paul-Guitar from my search window,
so that I become interested in the life story of
Lester William Polsfuss.

bedeutet ***Diese Anforderungen hat keine ethischen Implikationen.***



bedeutet ***Ich bin mir unsicher.***

bedeutet ***Diese Anforderungen hat ethische Implikationen.***

As a google user,
I want to be able to play a Les-Paul-Guitar from my search window,
so that I become interested in the life story of
Lester William Polsfuss.

Google's Les Paul guitar doodle may have cost $268 million in lost productivity

Updated: Mar. 22, 2019, 9:56 p.m. | Published: Jun. 17, 2011, 5:56 p.m.

By Geoff Herbert | gherbert@syracuse.com

Google The June 9

Google Doodle honored guitar innovator Les Paul's 96th birthday.

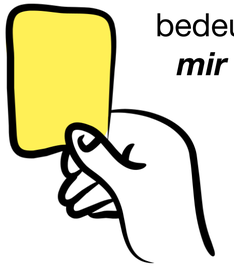
Last week, Google's homepage featured an interactive guitar honoring Les Paul. It played 10 notes, starting with a low G and climbing up to a high B. Users could literally play the guitar by dragging their mouse over the image's strings or use the keyboard to play each note.

Advertisement

Not right or wrong, but it contains a trade off!

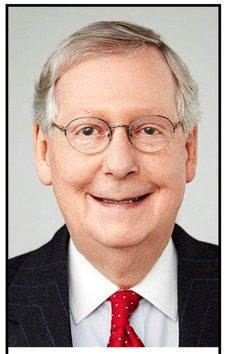
As a twitter user,
I want the system to crop my pictures automatically,
so that my timeline looks nicer.

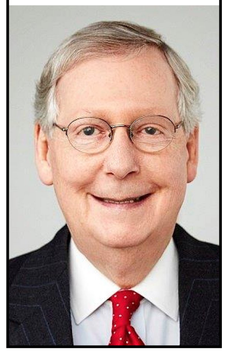
bedeutet ***Diese Anforderungen hat keine ethischen Implikationen.***

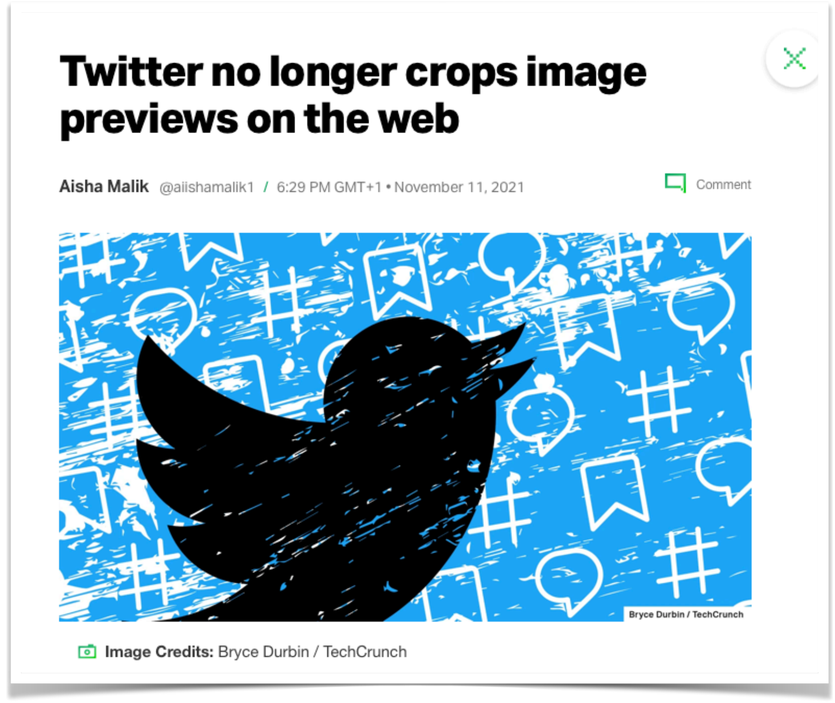


bedeutet ***Ich bin mir unsicher.***

bedeutet ***Diese Anforderungen hat ethische Implikationen.***



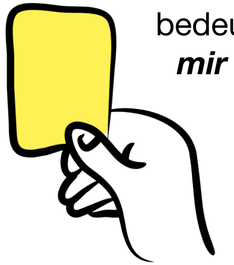




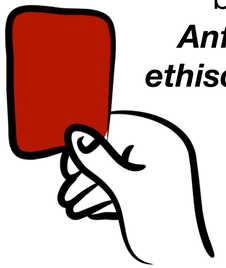
As a twitter user,
I want the system to crop my pictures automatically,
so that my timeline looks nicer.

As a social media company,
I want to experiment with filtering news feeds by use of A/B testing,
so that I understand how filtering posts influences users' happiness.

bedeutet ***Diese Anforderungen hat keine ethischen Implikationen.***



bedeutet ***Ich bin mir unsicher.***



bedeutet ***Diese Anforderungen hat ethische Implikationen.***

Facebook stirred up controversy because one of its data science researchers published the results of **an experiment on 689,003 users to see if showing them more positive or negative sentiment posts in the News Feed would affect their happiness levels** as deduced by what they posted.
The impact of this experiment on manipulating emotions was tiny, but it raises the question of where to draw the line on what's ethical with A/B testing.

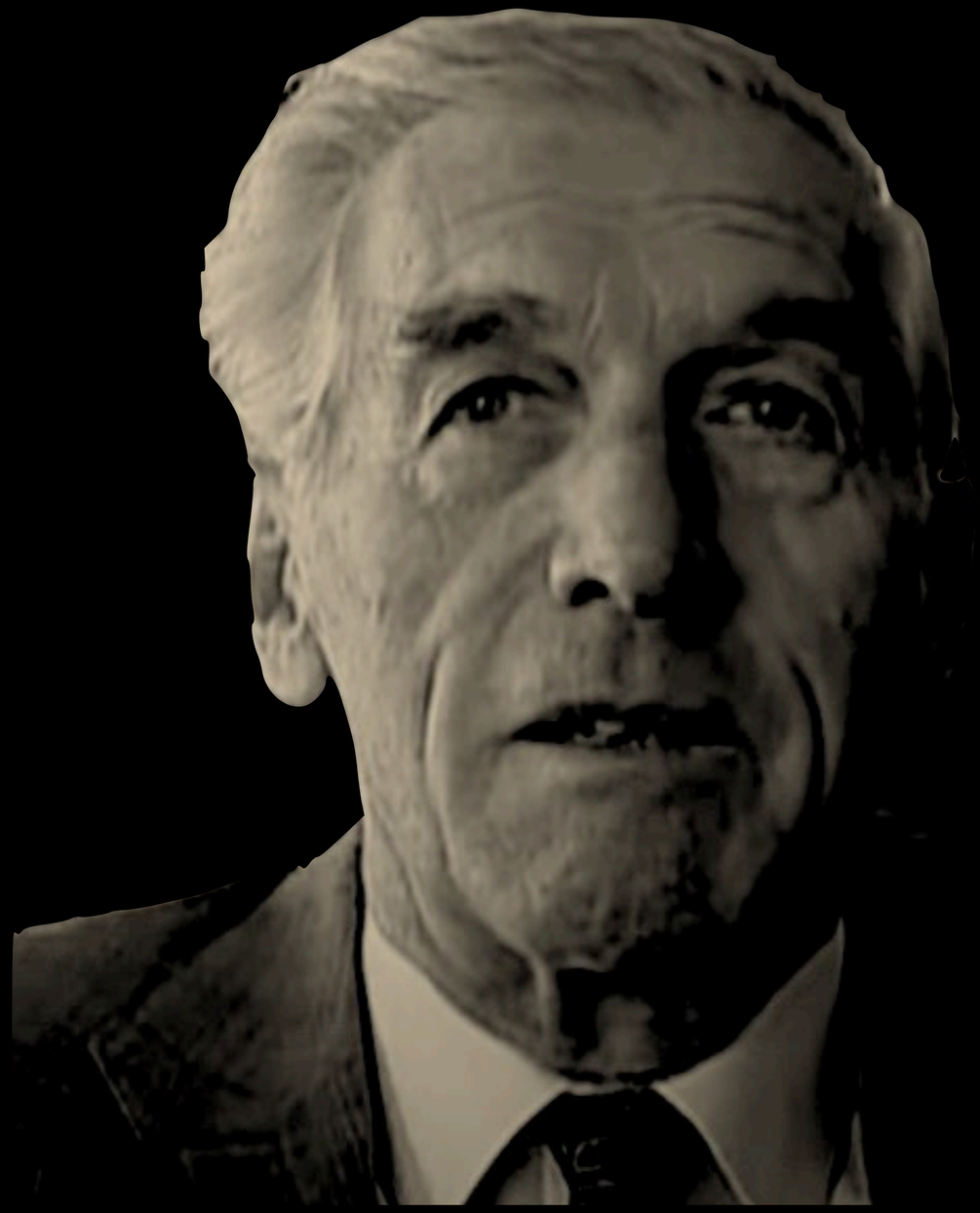
The Morality Of A/B Testing

Josh Constine @joshconstine / 4 years ago

Comment

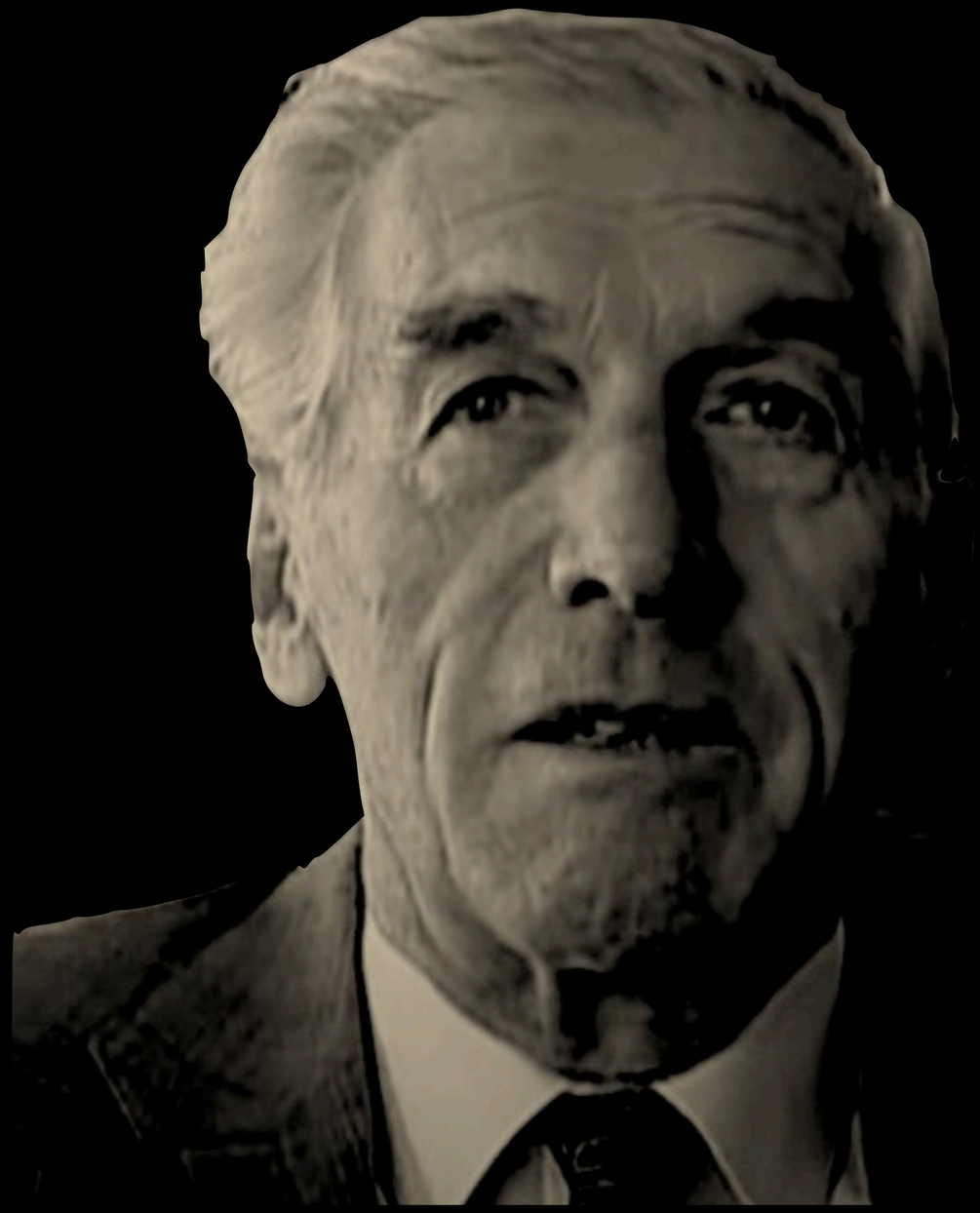
As a robot customer,
I want that the system is able to autonomously walk and run,
so that it does not fall over under unforeseen circumstances.

As a robot customer,
I want that the system is able to autonomously walk and run,
so that it does not fall over under unforeseen circumstances.



You cannot not
communicate.

– Paul Watzlawick, 1969



You cannot not
make ethical
decisions.

– Society, Now

① You cannot not make ethical decisions.

Aber wie?

Aber wie?

Selbstregulatorische Ansätze

vs.

Regulatorische Ansätze

Aber wie?

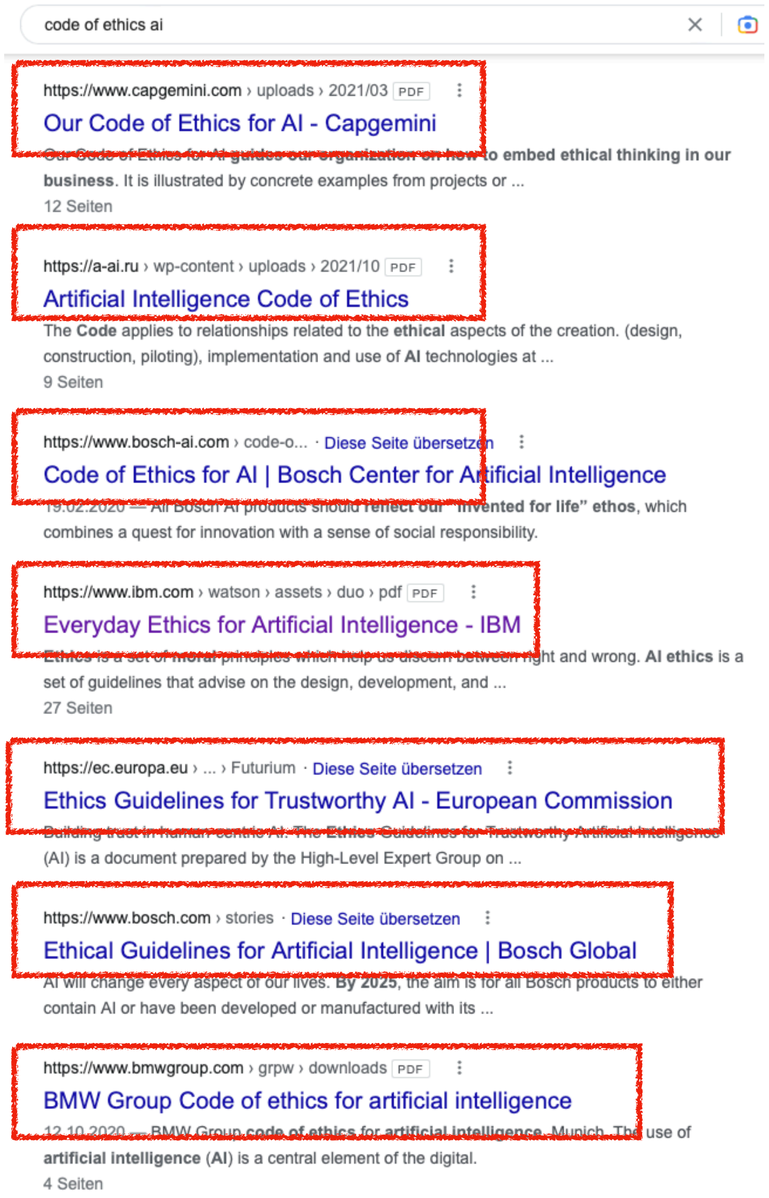
Selbstregulatorische Ansätze

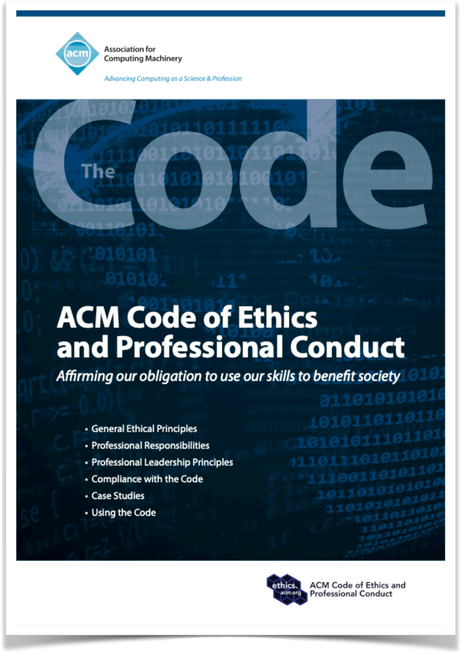
vs.

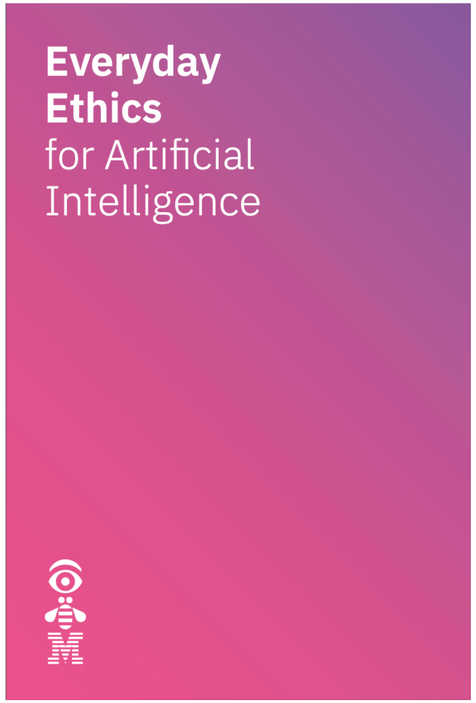
Regulatorische Ansätze

Selbstregulatorische Ansätze

- Everyone is doing it...







Everyday Ethics for Artificial Intelligence, IBM, 2014-2022.
https://www.ibm.com/watson/assets/duo/pdf/everydayethics.pdf
https://www.acm.org/code-of-ethics

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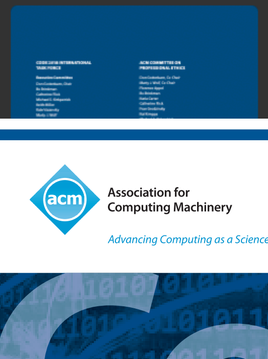

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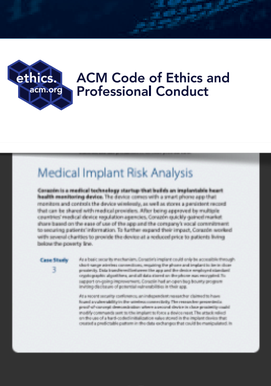

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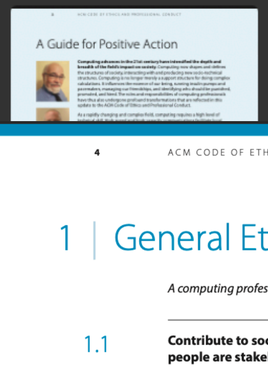

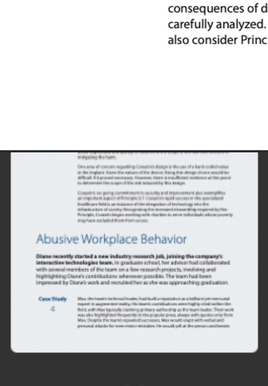

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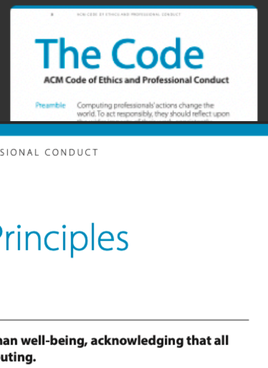

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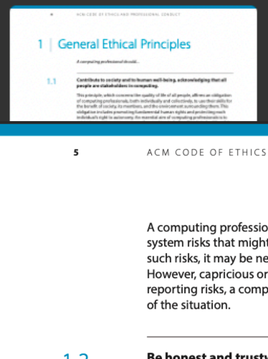

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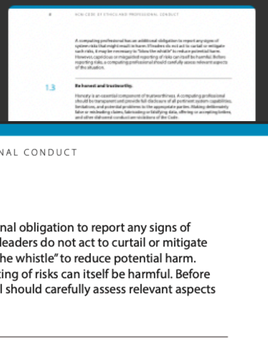

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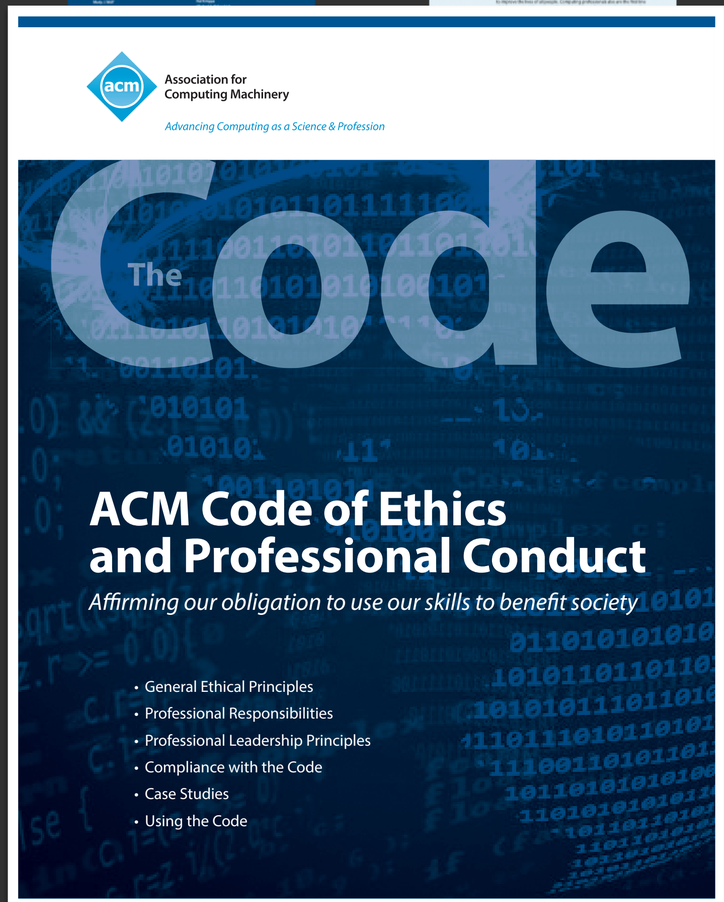

1 | General Ethical Principles

A computing professional should...

1.1

Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.

This principle, which concerns the quality of life of all people, affirms an obligation of computing professionals, both individually and collectively, to use their skills for the benefit of society, its members, and the environment surrounding them. This obligation includes promoting fundamental human rights and protecting each individual's right to autonomy. An essential aim of computing professionals is to minimize negative consequences of computing, including threats to health, safety, personal security, and privacy. When the interests of multiple groups conflict, the needs of those less advantaged should be given increased attention and priority.

All people are stakeholders in computing.

Computing professionals should consider whether the results of their efforts will respect diversity, will be used in socially responsible ways, will meet social needs, and will be broadly accessible. They are encouraged to actively contribute to society by engaging in pro bono or volunteer work that benefits the public good.

In addition to a safe social environment, human well-being requires a safe natural environment. Therefore, computing professionals should promote environmental sustainability both locally and globally.

1.2

Avoid harm.

In this document, "harm" means negative consequences, especially when those consequences are significant and unjust. Examples of harm include unjustified physical or mental injury, unjustified destruction or disclosure of information, and unjustified damage to property, reputation, and the environment. This list is not exhaustive.

Well-intended actions, including those that accomplish assigned duties, may lead to harm. When that harm is unintended, those responsible are obliged to undo or mitigate the harm as much as possible. Avoiding harm begins with careful consideration of potential impacts on all those affected by decisions. When harm is an intentional part of the system, those responsible are obligated to ensure that the harm is ethically justified. In either case, ensure that all harm is minimized.

To minimize the possibility of indirectly or unintentionally harming others, computing professionals should follow generally accepted best practices unless there is a compelling ethical reason to do otherwise. Additionally, the consequences of data aggregation and emergent properties of systems should be carefully analyzed. Those involved with pervasive or infrastructure systems should also consider Principle 3.7.

A computing professional has an additional obligation to report any signs of system risks that might result in harm. If leaders do not act to curtail or mitigate such risks, it may be necessary to "blow the whistle" to reduce potential harm. However, capricious or misguided reporting of risks can itself be harmful. Before reporting risks, a computing professional should carefully assess relevant aspects of the situation.

1.3

Be honest and trustworthy.

Honesty is an essential component of trustworthiness. A computing professional should be transparent and provide full disclosure of all pertinent system capabilities, limitations, and potential problems to the appropriate parties. Making deliberately false or misleading claims, fabricating or falsifying data, offering or accepting bribes, and other dishonest conduct are violations of the Code.

Computing professionals should be honest about their qualifications, and about any limitations in their competence to complete a task. Computing professionals should be forthright about any circumstances that might lead to either real or perceived conflicts of interest or otherwise tend to undermine the independence of their judgment. Furthermore, commitments should be honored.

Honesty is an essential component of trust.

Computing professionals should not misrepresent an organization's policies or procedures, and should not speak on behalf of an organization unless authorized to do so.

1.4

Be fair and take action not to discriminate.

The values of equality, tolerance, respect for others, and justice govern this principle. Fairness requires that even careful decision processes provide some avenue for redress of grievances.

Computing professionals should foster fair participation of all people, including those of underrepresented groups. Prejudicial discrimination on the basis of age, color, disability, ethnicity, family status, gender identity, labor union membership, military status, nationality, race, religion or belief, sex, sexual orientation, or any other inappropriate factor is an explicit violation of the Code. Harassment, including sexual harassment, bullying, and other abuses of power and authority, is a form of discrimination that, amongst other harms, limits fair access to the virtual and physical spaces where such harassment takes place.

The use of information and technology may cause new, or enhance existing, inequities. Technologies and practices should be as inclusive and accessible as possible and computing professionals should take action to avoid creating systems or technologies that disenfranchise or oppress people. Failure to design for inclusiveness and accessibility may constitute unfair discrimination.

https://www.acm.org/code-of-ethics

Code of Ethics funktionieren nicht.

(McNamara et al.)

Methodology: Controlled Experiment

- 105 professionelle und 63 studentische Teilnehmer
- Der Hälfte der Teilnehmer wird das ACM CoE gezeigt, der anderen Hälfte wird gesagt, „dass das Rückgrat der Unternehmenskultur starke ethische Standards sind“.
- 11 nicht offensichtliche ethische Fragen von StackOverflow, die Werte berühren, zB Probleme mit geistigem Eigentum, Ehrlichkeit, ...

Forschungsfrage: Beeinflusst das Vorhandensein eines Ethikkodex softwarebezogene ethische Entscheidungen?

- "**No statistically significant difference** in the responses for any vignette **were found** across individuals who did and did not see the code of ethics, either for students or for professionals."

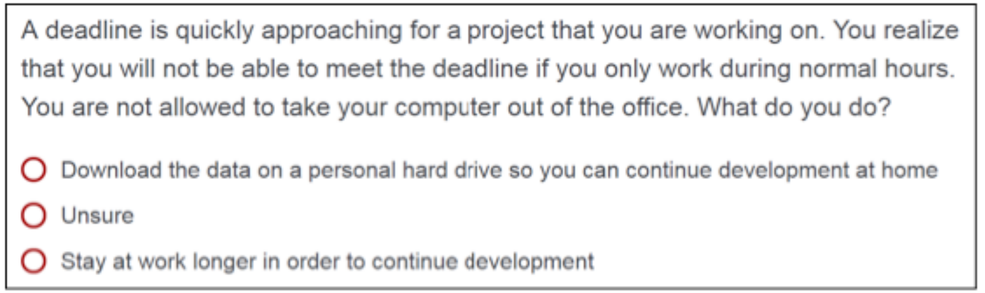

Figure 1: Intellectual property (*Waymo*) vignette

Does ACM's Code of Ethics Change Ethical Decision Making in Software Development?

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Emerson Murphy-Hill
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ABSTRACT

Ethical decisions in software development can substantially impact end-users, organizations, and our environment, as is evidenced by recent ethics scandals in the news. Organizations, like the ACM, publish codes of ethics to guide software-related ethical decisions. In fact, the ACM has recently demonstrated renewed interest in its code of ethics and made updates for the first time since 1992. To better understand how the ACM code of ethics changes software-related decisions, we replicated a prior behavioral ethics study with 63 software engineering students and 105 professional software developers, measuring their responses to 11 ethical vignettes. We found that explicitly instructing participants to consider the ACM code of ethics in their decision making had no observed effect when compared with a control group. Our findings suggest a challenge to the research community: if not a code of ethics, what techniques *can* improve ethical decision making in software engineering?

CCS CONCEPTS

• **Social and professional topics** → **Codes of ethics**;

KEYWORDS

ACM code of ethics, software engineering

ACM Reference Format:

Andrew McNamara, Justin Smith, and Emerson Murphy-Hill. 2018. Does ACM's Code of Ethics Change Ethical Decision Making in Software Development?. In *Proceedings of the 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE '18), November 4–9, 2018, Lake Buena Vista, FL, USA.* ACM, New York, NY, USA, 5 pages. https://doi.org/10.1145/3236024.3264833

1 INTRODUCTION

Software developers must constantly make ethical considerations, including deciding the proper amount of user data to collect; balancing added functionality with potential adverse environmental effects; and performing due diligence to reduce the risks of critical security bugs. Such ethical decisions can cause substantial harm to people, to organizations, and to our planet. Consider two recent examples.

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ESEC/FSE '18, November 4–9, 2018, Lake Buena Vista, FL, USA
© 2018 Association for Computing Machinery.
ACM ISBN 978-1-4503-5573-5/18/11…$15.00
https://doi.org/10.1145/3236024.3264833

The first example is the Uber versus Waymo dispute [26], in which a software engineer at Waymo took self-driving car code to his home. Shortly thereafter, the engineer left Waymo to work for a competing company with a self-driving car business, Uber. When Waymo realized that their own code had been taken by their former employee, Waymo sued Uber. Even though the code was not apparently used for Uber's competitive advantage, the two companies settled the lawsuit for $245 million dollars.

The second example is the "Dieselgate" scandal [21], where software inside certain diesel Volkswagen cars was programmed to run in one of two modes. In one mode, the car operated under normal, day-to-day driving conditions, but emitted pollution at levels above what is allowed by US and international regulators. In the other mode, the car emitted allowable pollution levels, but only when it detected that it was being inspected by regulators. Although software engineers raised objections to management about the devices, they did not bring these concerns to authorities [19]. Consequently, the company was forced to pay $30 billion dollars in compensation so far [31] and an estimated 59 people suffered early deaths as a result of the excess emitted pollution in the US alone [5].

As early as 1913, organizations have published codes of ethics to guide people facing such ethical situations [3]. In 1972, the Association for Computing Machinery (ACM) adopted a code of ethics designed to specifically to apply to software development. In 2018, the ACM code of ethics was updated for the first time since 1992 [2]. In light of recent software ethics scandals, like Dieselgate and the Uber versus Waymo dispute, and ACM's renewed interest in revising its guidelines, we are motivated to study the effect of ACM's code of ethics on ethical decision making in software development. While the ACM claims its code of ethics is "intended to serve as a basis for ethical decision making" [1] to our knowledge the effectiveness of this claim has never been tested.

We asked 63 software engineering students and 105 professional software engineers to consider 11 software-related ethical decisions. We derived these decisions from real ethical dilemmas faced by software developers. To assess how much the ACM code of ethics influenced decision making, participants were divided into two groups, a control group, and a group explicitly instructed to use the ACM code of ethics. The primary contribution of this paper is a better understanding of ethical decision making in software development and the influence of the ACM code of ethics on those decisions.

2 RELATED WORK

Researchers have postulated that many variables can influence ethical decision making [11]. Here we focus on the most relevant work pertaining to codes of ethics, including what their purposes

729

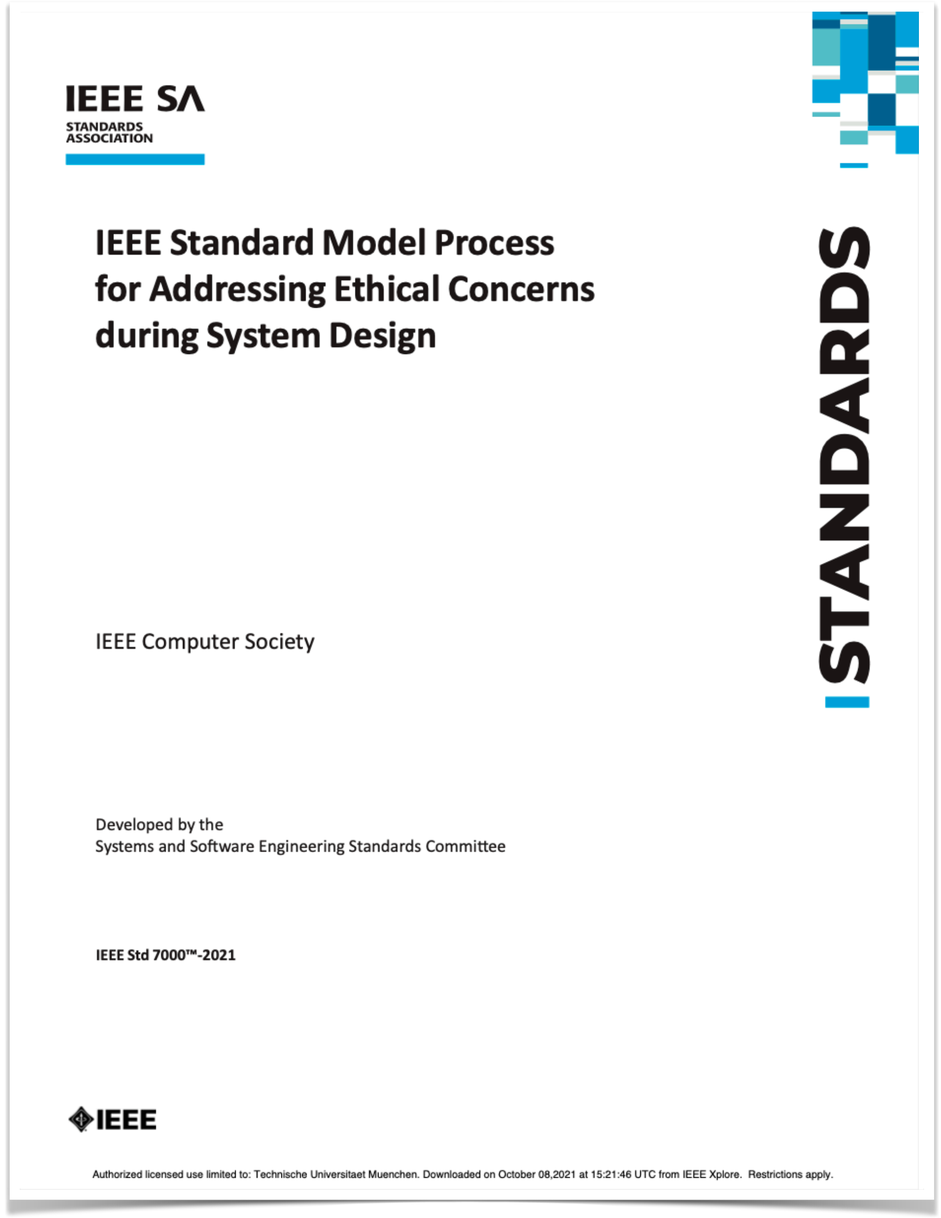
McNamara, Andrew, Justin Smith, and Emerson Murphy-Hill. "Does ACM's code of ethics change ethical decision making in software development?." ESEC/FSE. 2018.

① You cannot not make ethical decisions.

② Code of Ethics werden das Problem nicht lösen.

Aber wie?

Selbstregulatorische Ansätze
vs.
Regulatorische Ansätze



- Seit dem 15.09.2021 gibt es eine neue Norm!
- Prozessorientierter Engineering Ansatz mit starkem RE Fokus
- 154 Experten involviert, 34 Workgroup Mitglieder
- 79 Seiten

Abstract: A set of processes by which organizations can include consideration of ethical values throughout the stages of concept exploration and development is established by this standard. Management and engineering in transparent communication with selected stakeholders for ethical values elicitation and prioritization is supported by this standard, involving traceability of ethical values through an operational concept, value propositions, and value dispositions in the system design. Processes that provide for traceability of ethical values in the concept of operations, ethical requirements, and ethical risk-based design are described in the standard. All sizes and types of organizations using their own life cycle models are relevant to this standard.

IEEE 7000:2021 Process

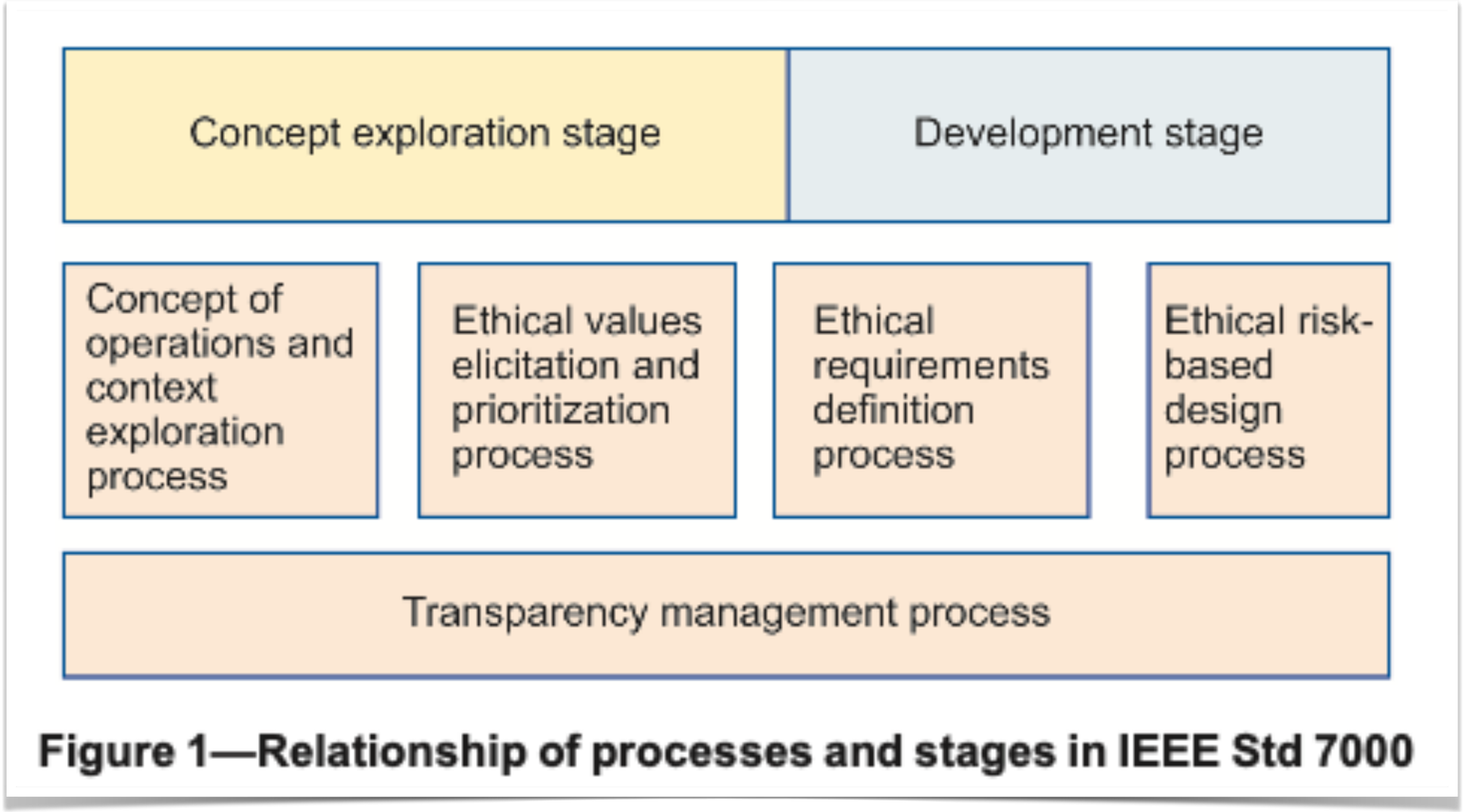


Figure 1—Relationship of processes and stages in IEEE Std 7000

IEEE 7000:2021 Process

Outputs:

a) Context description

b) Lists of stakeholders to be consulted and direct and indirect stakeholders affected by the ConOps

c) Refined SOI concept of operation

d) Outcomes of feasibility studies

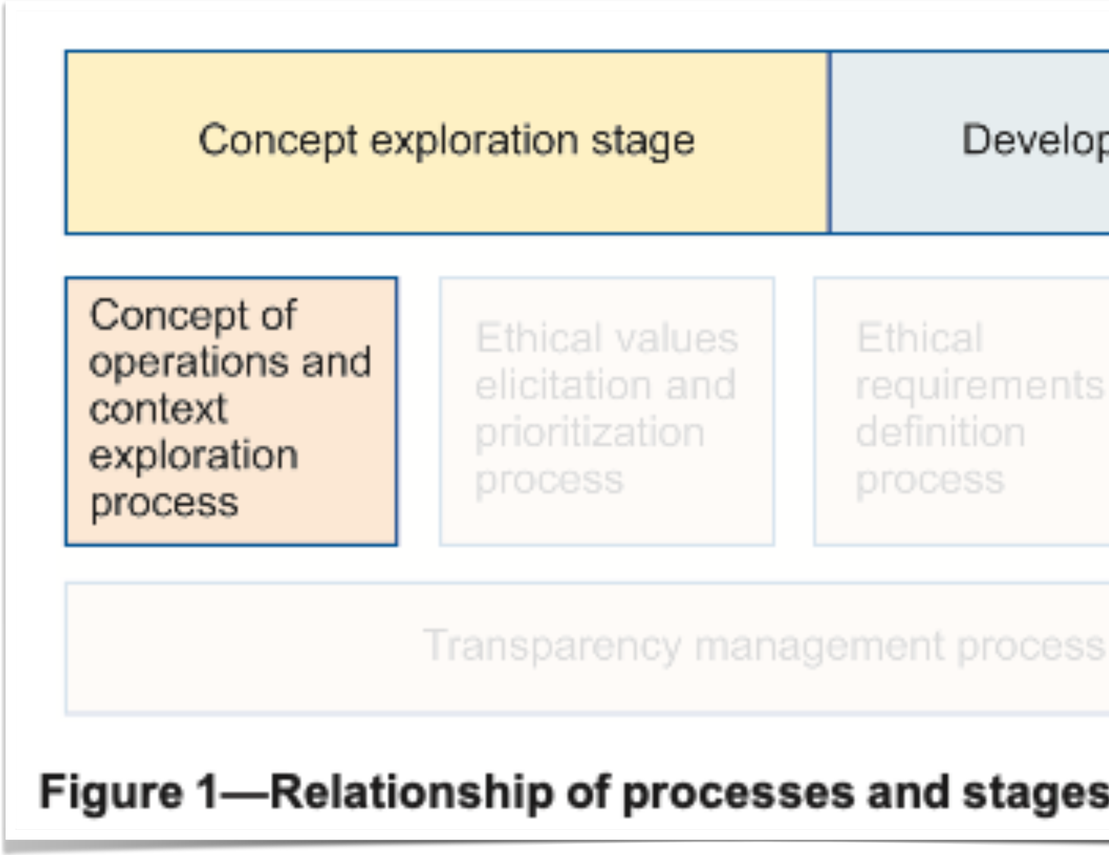


Figure 1—Relationship of processes and stages

Table D.1—Legal, social, and environmental feasibility study and analysis guidelines *(continued)*

Analysis topic	Legal	Social	Environmental
Question 1	Who are the leaders, managers, consultants, individuals, or groups, legally accountable and responsible for the design milestones across the concept exploration and development stages? Record the full chain of command in the design custody.	What different kinds of demographics, geographies and cultures are impacted by the SOI as designed?	What is the project/SOI's approach to compliance with international environmental standards such as ISO 26000 [B28] and ISO 14001 [B27]?
Question 2	What local, regional, national, and international regulatory bodies should be consulted or enhanced to evaluate a full 360 view of the SOI's legal responsibilities to its stakeholders, users, society, and international policy?	Are any special interest groups or stakeholders differentially impacted by the SOI's design? If so, how are these to be identified and addressed?	What is the scope and scale of the environmental impact?
Question 3	Are any special interest groups or stakeholder legal rights differentially impacted by the SOI's design? If so, how ae these to be identified and addressed?	Are there significant social, economic, political, or cultural issues among the stakeholders and users and their geographies/ cultures that should be analyzed using the precautionary principle? If so, they should be described in writing as a social feasibility baseline report.	How is the Precautionary Principle being applied? Describe how risks and threats are being identified and mitigated.
Question 4	What legislation relates to the granting of ownership/ control of the SOI design, data, use, storage and final disposition?	How can the SOI design be adapted to be more socially and culturally relevant for stakeholders and users?	What actions and policies are being taken for the SOI's use of rare earth materials, avoidance of contamination, recycling of waste materials, protection of habitats and wildlife?

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Outputs:

a) Value Register or case for ethics

b) List of potential technical and organizational risks

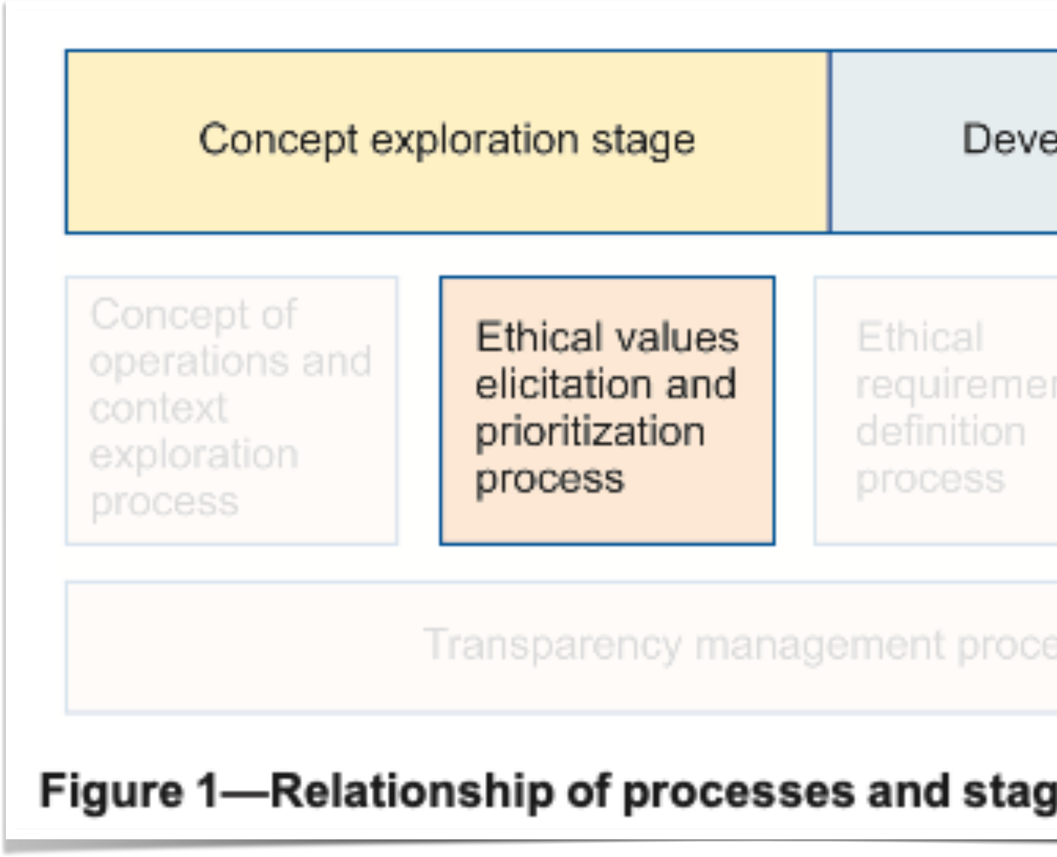
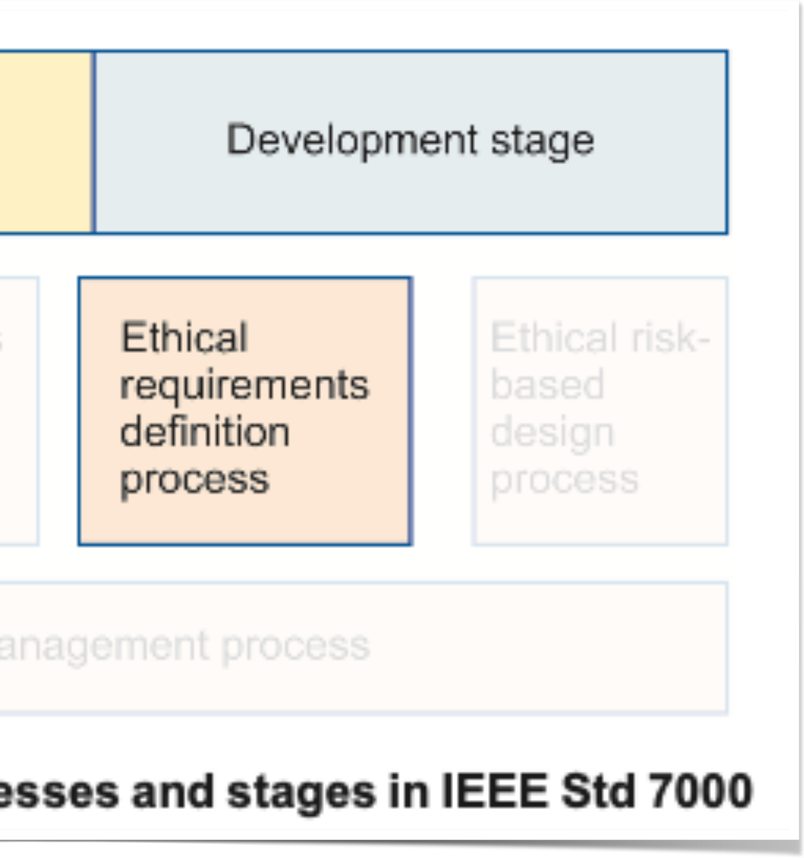


Figure 1—Relationship of processes and stag

IEEE 7000:2021 Process



Outputs:

a) Ethical Value Requirements (EVRs) and value-based systems/software requirements

b) Potential technical and organizational risks and opportunities for the EVR

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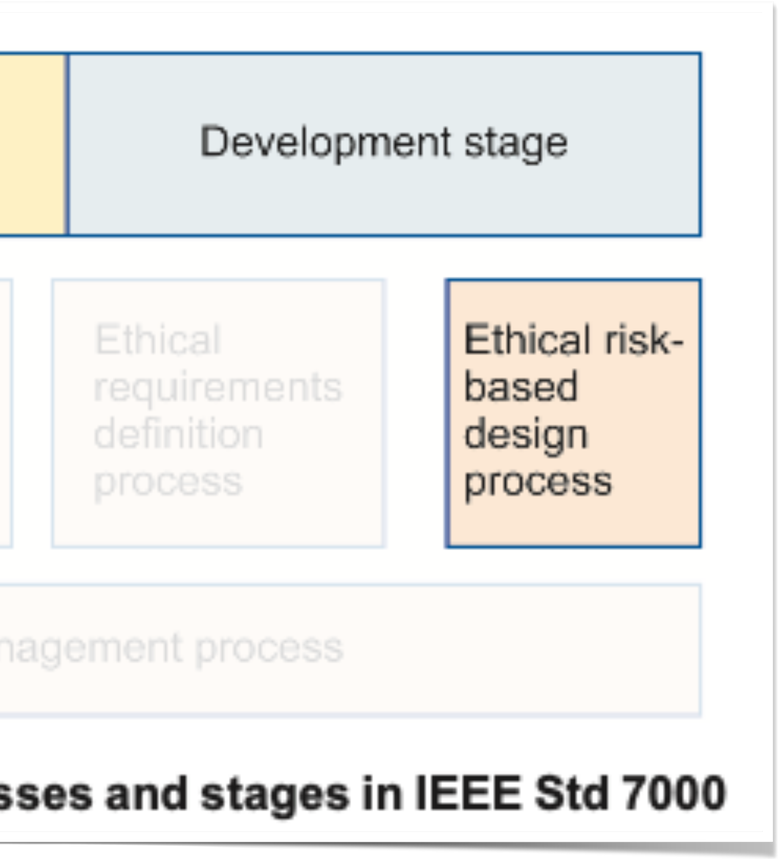


Outputs:

a) An ethically aligned design for the SOI

b) A refined concept of operation and operational concept

c) An updated Value Register

d) An updated Case for Ethics

IEEE 7000:2021 Process

OutCOMES:

a) Sufficient appropriate information about the ethical aspects of the SOI is made available during system development and afterward.

b) Stakeholder and project communications reflect principles of transparency, accountability, and explainability.

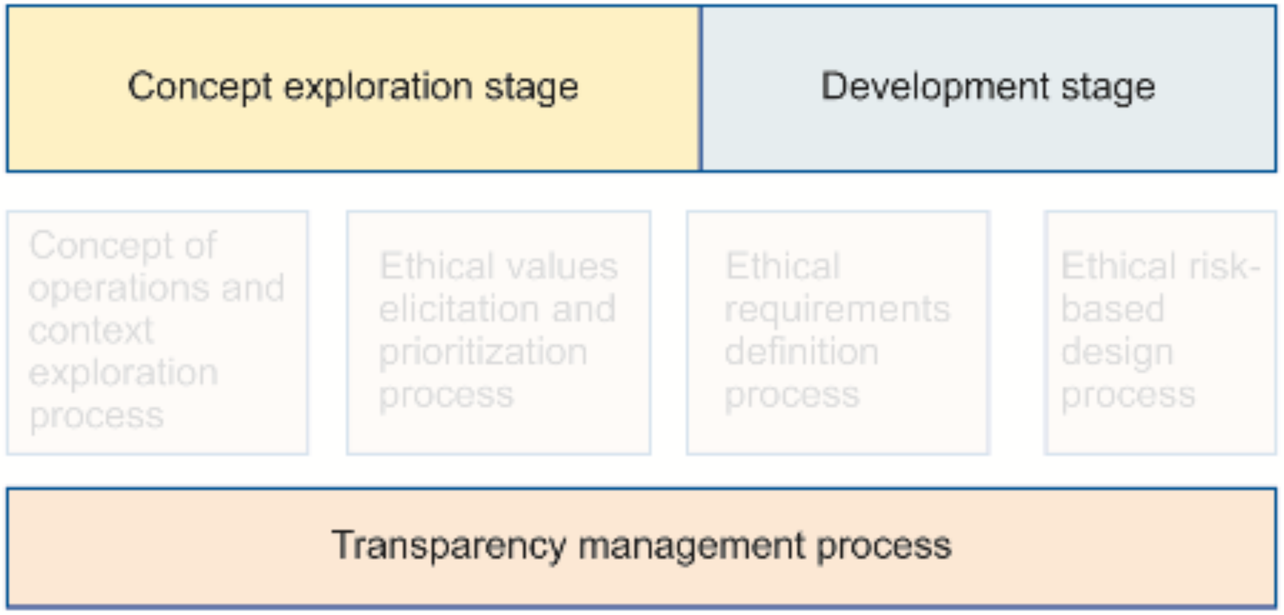
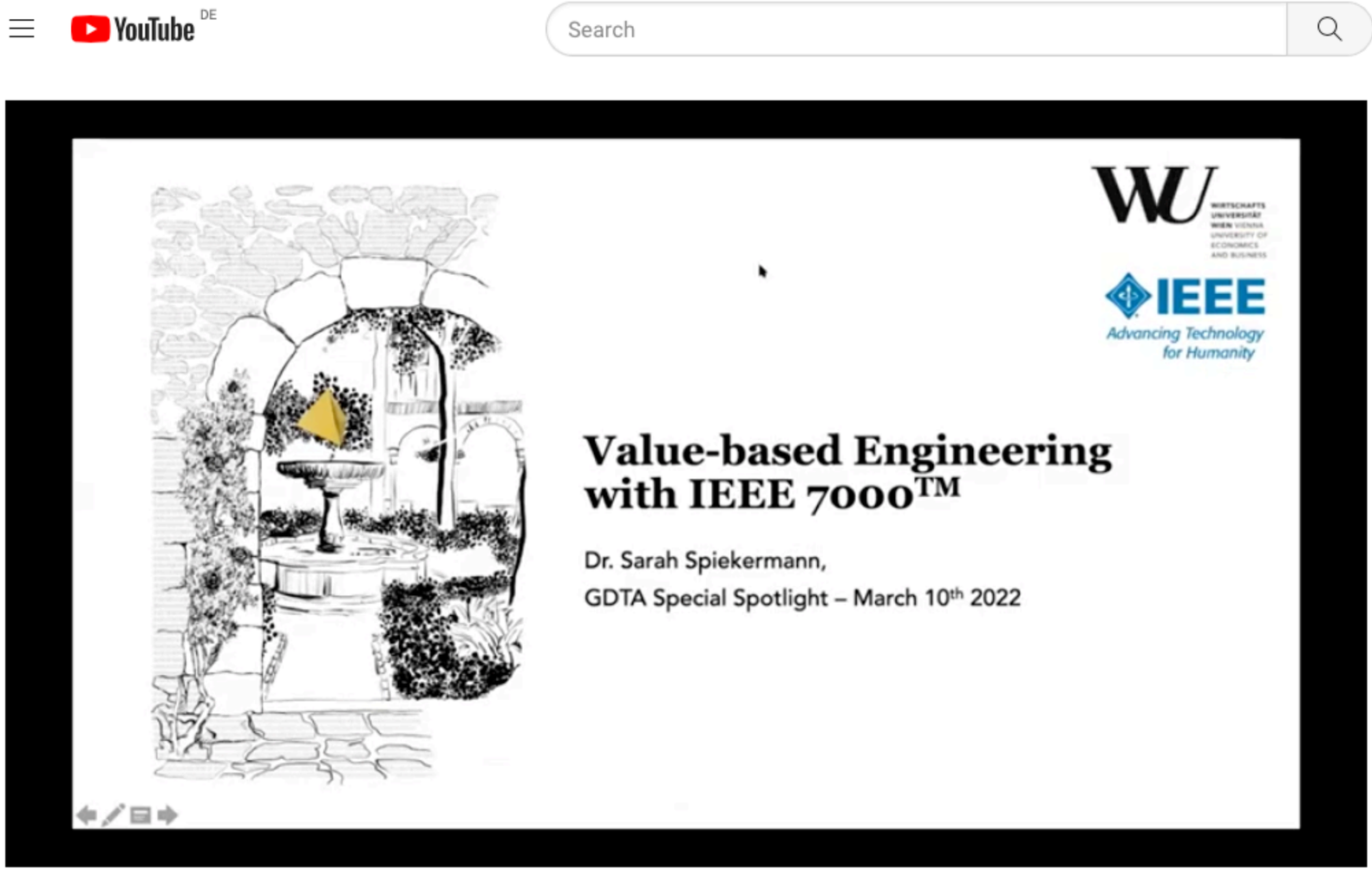
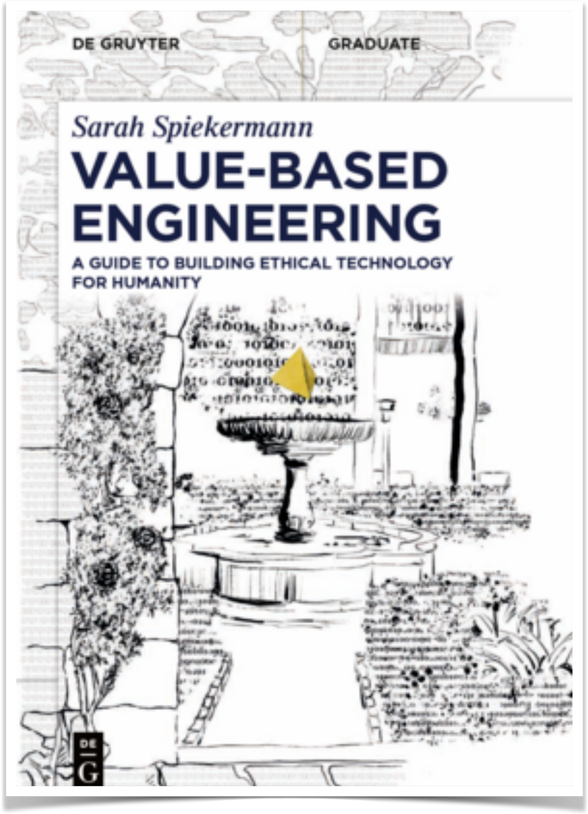


Figure 1—Relationship of processes and stages in IEEE Std 7000

More explanation and details on this topic





GDTA Spotlight Special: Sarah Spiekermann. Value-Based Engineering with Design Thinking
https://www.youtube.com/watch?v=fgrO-dhJCCk

① You cannot not make ethical decisions.

② Code of Ethics werden das Problem nicht lösen, also werden regulatorische Ansätze in den Fokus rücken.

③ Mit dem IEEE 7000:2021 kommen neue Aufgaben auf das Requirements Engineering zu.

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Qualicen

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Mein Ziel heute:
Unternehmen finden, die dieses Thema gemeinsam mit mir ausprobieren wollen, z.B. in Form von Abschlussarbeiten.

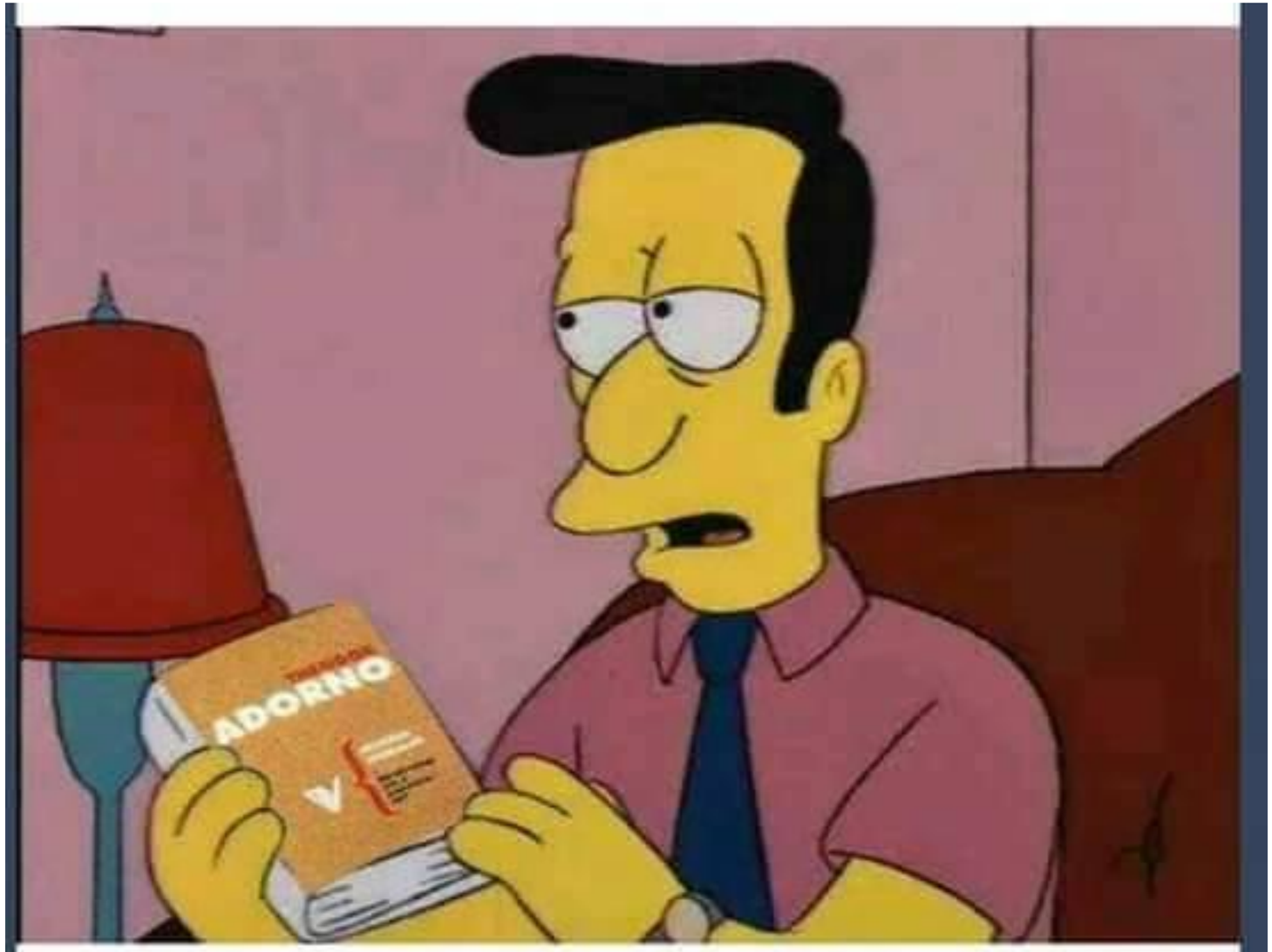
Requirements of Oppression

Amy J. Ko, Ph.D.
Professor
The Information School
University of Washington, Seattle, USA

Tugendethik: "What would Jesus do?"

Pflichtethik: "Darf man so handeln?"

Utilitarismus: "Was ist der Gesamtnutzen?"



claeswar

"Marge *everything* is corrupted by capital. Have you ever sat down and read this thing? Technically the way we close a car door is fascist."