

Digital first, concerns second: Our power to change everyday life and the question of responsibility in algorithm development.

Ulrike Lucke & Ina Müller SFB 1294 Colloquium

How ethics came into my life

ELSI – ethical, legal and social issues





Universitär

Ethical discussions on innovations



- Self-driving cars
- Racial profiling
- Atomic bomb



This reminds me of ...



... bankers.





Digital first, concerns second



GG

Computer scientists are not famous for their ethical thoughts. They develop software that is good when it runs without errors. The social sciences and philosophy, on the other hand, are predestined to take a critical look at technical developments and embed them in a social context.¹

99

¹ translated from https://www.deutschlandfunk.de/virtuelle-realitaet-wann-es-gefaehrlich-wird.1148.de.html?dram:article_id=348671 (17.03.2016)



Law

Ethics

Targeted Domains Technology Vagueness

Decision, Action

Attribution, Guilt

Responsibility



6



When law becomes relevant







12.06.2020

When ethics become relevant



Patient Information

Your doctor has provided you with patient information and advised you of the porsibility to particiroke volker ne provided you was patient unstimution and advised you on the possio Date in the German Halemophila Registry (Deutsches Hamophilleregisten) (dm). We would the to give you some important information, which you will need to know in order to Your doctor will also sell you about the DHR in person. Please do not heatate to ask if you need decide whether you wish to participate; please read carefully. Whether you will participate in the DHR remains entirely your own decision. We would be very

> The DHR its role and its purpose The German Haemophilia Registry is an online

lation disorder.

The DHR is designed ... · to support the best possible provision of

ited amounts.

The DHR is designed ...

happy if you joined in.

Your DHR-Team

About us

We, i.e the participating institutions: Paul-Ehrlich-Institut (PEI) in its function as the senior federal authority.

- Gesellschaft für Thrombose- und Hämostaseforschung e. v. (GTH: Society for Thrombosis and Haemostasis Research) in its function as scientific society. and the following two patient organisations are involved as representatives of the patients' in-
- Deutsche Hämophiliegesellschaft zur Bekämpfung von Blutungskrankheien e.V. (DHG; German Haemophilia Association for Comba-
- ting Bleeding Disorders) and interessengemeinschaft Hämophäer e. V. (IGH; Interest Group of Haemophiliacs).
- Supported by the Federal Health Ministry (Bundesministerium für Gesundheit BMG), we all have a common goal: to improve the treatment with blood products and the quality of life for
- patients with blood coagulation disorders haemophilia A or B, von Wilebrand's disease etc. -

Application for the Ethical Approval for a Scientific Project

The Emotional face processing in Autism Spectrum Disorders: The role of Contact details of the applicants: ncipal investigator rof. Isabel Dzlobek lumboldt Universität zu Berlin nter den Linden 6 10099 Berlin abel.dziobek@hu-berlin.de

030-2093-6186

Participating Researchers Dr. Mareike Bayer Humboldt Universität zu Beetin Unter den Linden 6 10009 Berlin narelke.bayer@hu-berlin.de 030-2093-0185

General information concerning the research project, its relevance and nine

The proposed study investigates encodenal data precedutes and spossible logate of personal selection between partners. Discover relations and approximate logates of the advance well and simultaneous IEC of the logates and testing to the encode and serval indicates of encodenal fee perception.

ADD is a negatively possible discover characterized by prever defaults in model functioning a neutrino with the neutrino state of the state of the state of the core at this denay. Which neutrino states are stated and the states of the state processing prevention of the states of the state of the states of the denay of the states of the states of the states of the states of the denay of the states of the evolution of the states of the states of the states of the evolution of the states of the evolution of the states of the states

vivoneny nor anorem metetonal consectivity and anatomical covariance between angrada and functions grvus (Dziolek, Balmemana, Courit, & Heekers, 2010). Boinhaus et al. 2008). It was previously suggested that reduced attentions to faces and specially to the eye region sugges by suggestion of the reduced attentions in the PFA and do-suggesting that Oblivious at .2005, Dimensional Research and the reduced lowers at and reduced attention of the reduced abservations of reduced lowers at and voltaments and the reduced lowers at and voltaments are suggested lowers. al. 2005; Hämanan, Dalebek, Hert Eastervig, & Heekeren, 2012). Importantly this for the with clicked observations or reduced interest and vollapines to regard to add the state of the state transmission. The wind called a between data of reduced intervent and voltageness to engage in acid. Interventions, expectably with strangers to the other bands (addressed or equations) and the second strangers are second as a second strangers of second strangers for examples and second strangers for second stranger Interactions expectably with strangers, Ou the other hand, individuals with ASD as well able to forward and "normal" stachments, for example to their case interactingly, this is referred to evidence for tarinal (unreduced) balance action action of the statement of the evidence for tarinal (unreduced) balance action action of the statement of the evidence for tarinal (unreduced) balance action action of the statement of the Interestingly, this is reflected in endence for normal (unreduced) nations the case of familiar faces, presumably because they are personally relevant receive more attendion than faces of transport (Pierce & Redice), 2008; Pierc

meaningful evaluation and important that go beyond the experience of the patient and doctor. To compare data over time, we keep all data - both old

- for an indefinite period. What do we hope to get from this short: We expect to find better con vention (prophylaxis), for approp operations and lesions, as well and treating complications (e.g. The DHR makes it easier ...

database (operated at the Paul-Ehrlich-Institut)

for the storage and evaluation of pseudonymised

data (see below) of patients with a blood coagu-

blood products for each patient. This is very important, also since blood products cannot be stored indefinitely, like other medicinal prod-

ucts, and since they are not available in unlim

• to promote scientific dinical research

better treatment of your disease. We net

collect data from many patients to ob

ce. 20041



Socio-technical arrangements





Empirical work



- How does interaction between humans and technology look like?
- Which expectations do designers have regarding the interaction with users?
- Which expectations do users have regarding the interaction with technology?
- How does complexity result from this situation?
- \rightarrow Orientation problems
- How do orientation problems arise?
- How do expectations, complexity and orientation problems mutually interfere?
- \rightarrow Uncover, visualize and translate



OP Robots





OP Robots: results



Peculiarities:

- Increased teamplay, technology connects human agency
- Users as instant co-constructors of technology
- Recipients of technology (patients) is important for the effectivity

Characteristics:

- Only for selected medical areas
- National differences in usage
- Monopolist: Intuitive Surgical
- Robot (HW+SW) acts for a human
- Co-construction
- Relevance of recipients

Personal Assistants





Personal Assistants : results



Peculiarities:

- Common technology enhanced by AI
- Un-intended learning and connections by the device
- Un-intended reading of data by manufactuer
- Digital experiments in personal life
- Creation of safety along with creation of new uncertainty
- Users as autonomous coconstructors, depending on technophily and creativity

Characteristics:

- High interconnectivity with other technology (inter-activities, intransparency)
- Everyday life
- Normalisation and variation of usage practices

12.06.2020



Virtual Reality



Virtual Reality: results



Peculiarities:

- Strict roles in overall story
- Increased experience in leisure and profession
- Various levels of presence, transcendence
- Functional vs. fictituous setting
- Constructors: copying the real world while reducing it to a minimum
- Users: seeing artificial world that is sensed to be real → mismatch
- Clearly structured agency / control

Characteristics:

- Immersion to another world
- Based on cooperation
- Learning experience through presence
- Tradeoff between reduction and preservation of complexity
- Selective takeover of schemata during reflection (training vs. gaming)

Socio-technical arrangements





12.06.2020

University of Potsdam | Department of Computer Science

Complexity

Complex

the relationship between cause and effect can only be perceived in retrospect probe – sense - respond

emergent practice

novel practice

no relationship between cause and effect at systems level

act – sense -respond

Chaotic

Complicated

the relationship between cause and effect requires analysis or some other form of investigation and/or the application of expert knowledge sense – analyze - respond good practice

best practice

the relationship between cause and effect is obvious to all

sense - categorize - respond

Simple



How to assess this before things happened?





Complexity (continued)





The demand for ethical orientation

- Complex socio-technical arrangements might have unpredictable effects:
 - In the living environment
 - In the construction environment
- \rightarrow Future interaction scenarios are unknown
- Todays design decision does not only affect todays interaction scenarios, but also future!
- What is *"the right thing"* to be done?
- \rightarrow Where and what might be helpful clues?

21





12.06.2020

Reflective questions



To be asked

- in conceptualization or proposal phase
- in all phases where problems might affect the conception of a project.
- \rightarrow Goal setting
- \rightarrow Good life
- \rightarrow Pictures of humans
- → Technology

Reflective questions: goal setting



- What is the technical and social goals of your projects?
- Which social problem is solved by using your solution?
- How might this system change the life of its users?
- Which (technical and social) chances result from the project?
- Which (technical and social) risks might result from the project?
- Would you use the system you are developing?
- Would you recommend your family or friends to use it?
- What is the ideal scenario of use for the system? (utopia)
- What is the worst possible scenario of use? (dystopia)

Reflective questions: good life



- What does good life for your and for others mean to you?
- What should never happen to a world you want to live in?
- What means happiness to you?
- What does a good/just society look like to you?
- What does a successful/good life mean to you?

Reflective questions: pictures of humans



- What are the basic needs of human beings?
- How do you think these needs are met in the best possible way?
- What does a dignified life look like?
- What is your relationship between quantity and quality of life?
- Is the evolution of mankind random, or improving, or negative?
- What does autonomy mean to you?
- What does justice mean to you?
- What does concern mean to you?
- What does responsibility mean to you?

Reflective questions: technology



- What do you consider good technology?
- What purposes does the use of technology serve for you?
- Can social problems be solved (primarily) by technology?
- Do you consider this to be without alternative (sensible, good)?

Operationalization of this reflection





Ethics in the development process





- Punctual ethical reviews • are rather less effective, but expensive.
- Nobody is more familiar • with the potential of a technology than its developer!

Ethics by design



Thank you!

Prof. Dr.-Ing. habil. Ulrike Lucke

University of Potsdam Department of Computer Science Complex Multimedia Application Architectures ulrike.lucke@uni-potsdam.de



