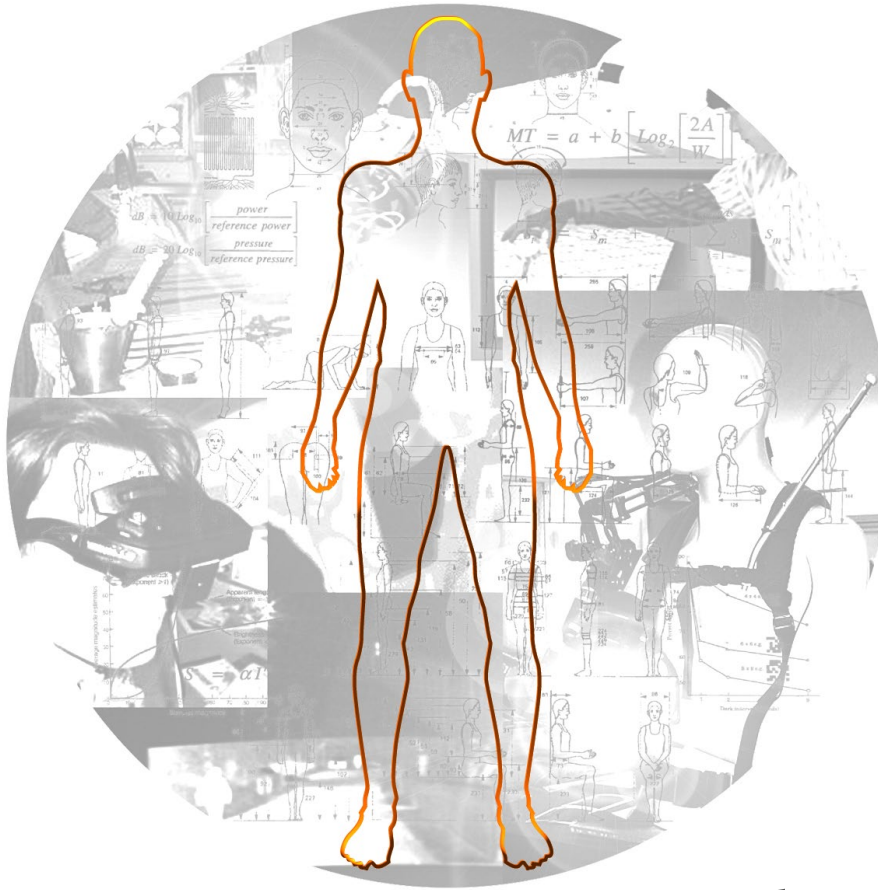
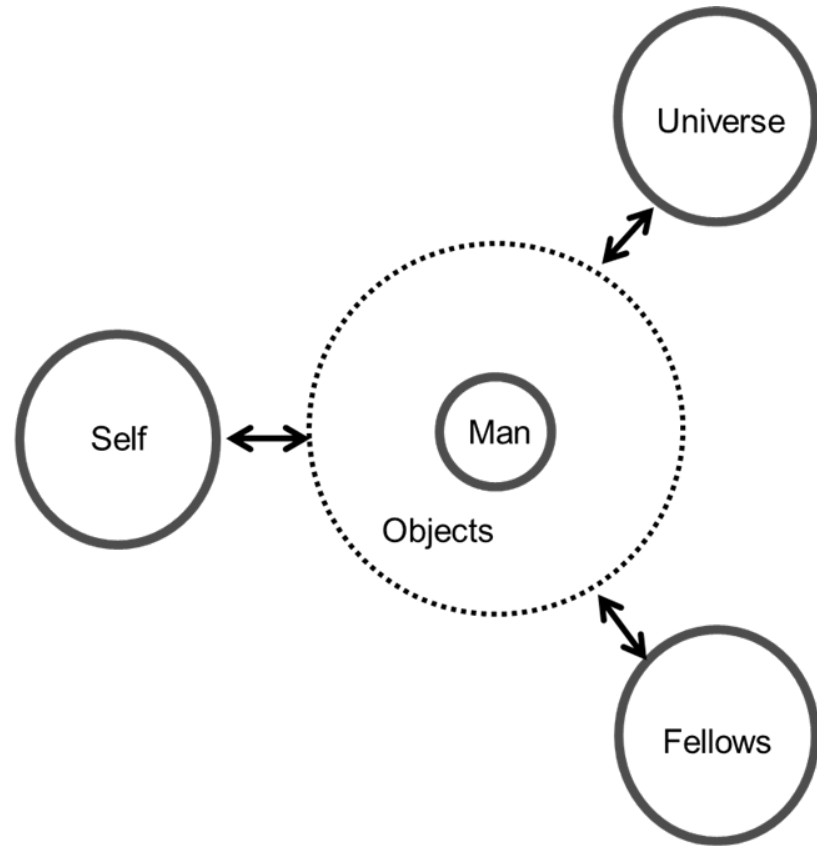


Design Ethics



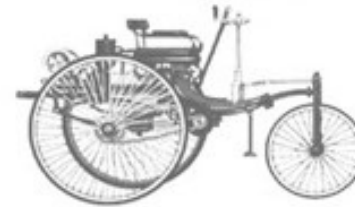
Prof. Joseph Giacomini



Why Ethics ?

“The objects that people use, despite their incredible diversity and sometimes contradictory usage, appear to be signs of a blueprint that represent the relation of man to himself, to his fellows, and to the universe”.

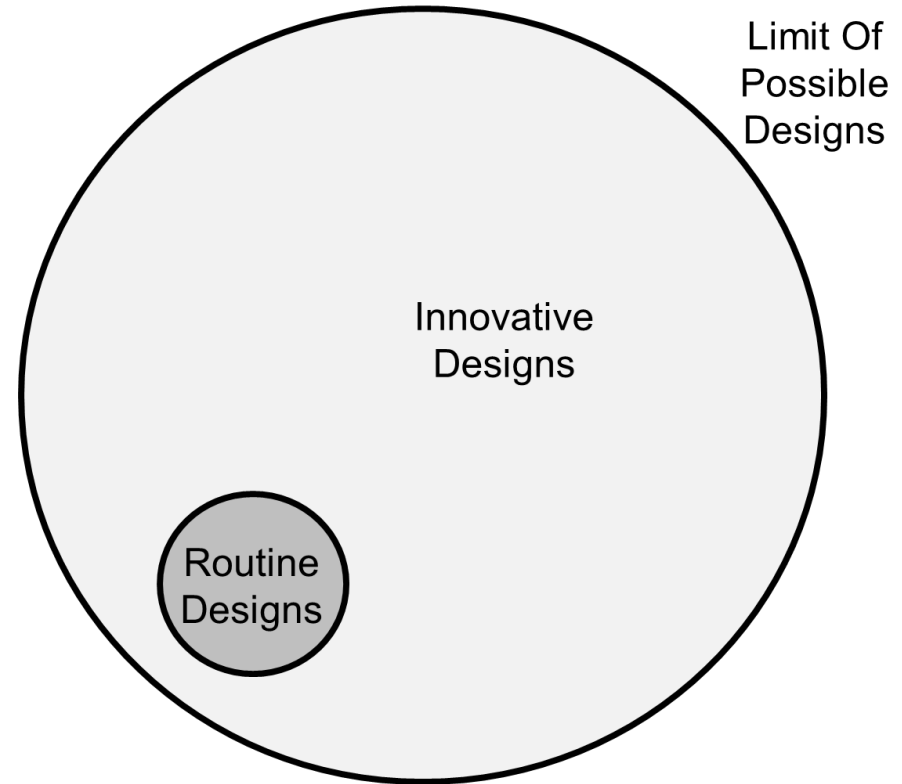
Csikszentmihalyi, M. and Rochberg-Halton, E. 1981, *The Meaning Of Things: domestic symbols and the self*, Cambridge University Press, Cambridge, UK



Why Ethics ?

“There are no neutral technologies, or, positively put, all technologies are non-neutral”.

Ihde, D. 1995, Postphenomenology: essays in the postmodern context, Northwestern University Press, Evanston, Illinois, USA.



Why Ethics ?

Ethical considerations are often the main boundary constraint of a design.

Gero, J.S. 1990, Design Prototypes: a knowledge representation schema for design, AI Magazine, Vol. 11, no. 4, pp.26-26.

Why Ethics ?

Ethics is at the heart of activities which are predicted to grow in scale and importance in the coming years.

Climate resilience

Biodesign

Designing for diverse audiences

Information access

Reducing planned obsolescence

Catalysts for change

Tighter feedback loops in healthcare

Addressing evolving needs of the elderly

Affordable neighbourhoods

Rethinking value creation

Design for human survival

Diversity of design thinking

Public policy

Digital technology

Inclusive technology

Systems thinking

AI in healthcare

Accessibility

Cities

Climate change and AI

Design decolonization

Translating debate into action

Living peaceably with technology

End of fragmentation

Health

Medical data

Regenerating cities

Mental health

LaBarre, S. 2021, Where design can make the biggest impact in the next decade, according to over 30 experts, Fast Company Magazine, 23/9/2021, <https://www.fastcompany.com/90667677/where-design-can-make-the-biggest-impact-in-the-next-decade-according-to-over-30-experts>

Defining Ethics

The rules of conduct recognised for a particular class of human actions or a particular group or a particular culture.

A system of moral principles.

That branch of philosophy dealing with the rightness and wrongness of certain actions and to the goodness and badness of the motives and ends of such actions.

aesthetics
autonomy
conscience
flourishing
intuition
need
rights

agency
care
evolution
harmony
merit
pain and pleasure
sympathy

authority
character
finitude
interest
natural law
revelation
tradition and history

Ethical Concerns

Concerns provide a basis for connecting thoughts, comparing situations and drawing conclusions about right or wrong.

Baggini, J. and Fosl, P.S. 2007, *The Ethics Toolkit: a compendium of ethical concepts and methods*, Blackwell Publishing, Maldin, Massachusetts, USA.

Moral Theories

Theory	Assumptions	Criticisms
Ethical Egoism	The right action is the one which advances one's own best interests. The interests of others are only relevant if helpful to promoting one's own good.	<p>Can be inconsistent since short term and long term interests are often in conflict between themselves.</p> <p>Seems to violate a relatively universal component of most ethical theories, that of moral impartiality, i.e. the desire to treat equals equally.</p>
Utilitarianism	The right action is the one which achieves the best balance between happiness and unhappiness, across all of the people who are involved.	<p>It is very difficult to compare the happiness, or the unhappiness, of different people.</p> <p>It is often difficult to decide which exact effects should be considered when evaluating the resulting happiness or unhappiness.</p> <p>It is often the case that the effects of an action differ depending on the time frame considered. Something which leads to happiness in the short term can lead to unhappiness in the long term.</p>

Moral Theories

Theory	Assumptions	Criticisms
Natural Law Theory	The right action is the one which is consistent with nature, i.e. with its revealed characteristics, purposes and goals.	<p>The approach is absolutist since it has no mechanism for addressing deviations from historical nature. The position that certain acts are always wrong seems impractical and often inconsistent with respect to common sense.</p> <p>The approach fails to provide guidance if the position is accepted that there is no unique, definitive and knowable human nature.</p>
Virtue Ethics	The right act is the one which produces happiness and flourishing due to increasing natural virtues and progressing towards a natural purpose.	<p>It is not always obvious which patterns of a person's feelings, desires and behaviours should be considered virtues.</p> <p>It is not obvious how to deal with situations where the requirements of one virtue of the individual are in conflict with those of another virtue.</p>
Kantian Ethics	The right action is the one which is performed out of a sense of duty, rather than because of contextual factors such as the effects of the act. Right actions are performed based on good will and duty for duty's sake.	<p>The approach seems incomplete or even empty due to clarifying the reason why a person should act, but not the content of the act. It is not clear in most cases what the duty should be, or why it is a duty.</p> <p>The approach does not take account of the consequences of the chosen actions, thus leads to situations where harm can be caused by a right response to a wicked person or wrong situation.</p>

Moral Theories

Theory	Assumptions	Criticisms
Social Contract Theory	The right act is the one which is consistent with the implicit or explicit social contract in which self-interested and rational people agree the behaviours which ensure their safety, peace and prosperity.	<p>Historically, few people have explicitly consented to a social contract. And it is difficult to suggest that implicit consent can be claimed simply due to living and prospering within a society which is characterised by certain accepted norms and rules.</p> <p>Contractarian ethics cannot provide a basis for several popular concepts such as that of universal human rights, and thus runs into difficulties with individuals such as children or animals who have only limited abilities to enter into contractual relations.</p>
Feminist Ethics	The right act is the one which corrects how gender operates within our beliefs and practices. The right act supports personal relationships, considers the emotions involved and emphasises care.	<p>Basing decisions on feelings, emotions and caring can lead to the breaking of societally accepted moral codes.</p> <p>It appears to be tailorable to each individual and individual situation. If relativist, then it is not a true ethical theory.</p>

Moral Judgements

One approach for mediating different viewpoints has been used from early times: the Golden Rule.

Exact wording can be either positive such as “treat others as you would like others to treat you” or negative such as “do not treat others in ways that you would not like to be treated”.

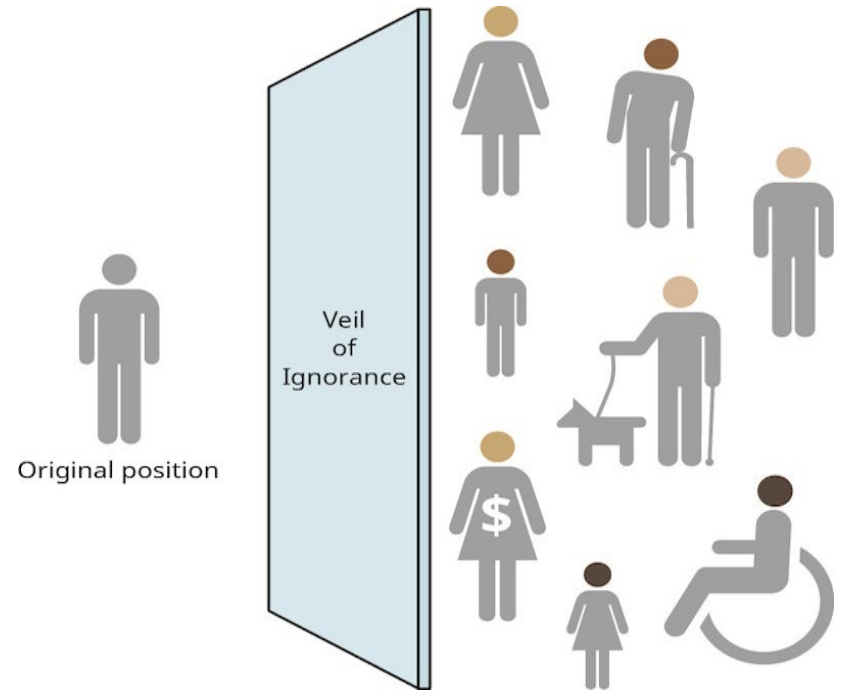


Analects Of Confucius (15:24) Do not impose on others what you do not wish for yourself.

Torah (Leviticus 19:18) Thou shalt not avenge nor bear any grudge against the children of thy people, but thou shalt love thy neighbour as thyself.

Bible (Mark 12:29-31) Thou shalt love thy neighbour as thyself. There is no commandment greater than these.

Quran (Surah 4:36) And do good to parents, kinsfolk, orphans, the poor, the neighbour who is near of kin, the neighbour who is stranger, the companion by your side.



Moral Judgements

John Rawls proposed that moral principles and priorities should be decided from thought experiments involving an “original position” or “veil of ignorance”.

The approach involves asking people to express their principles and priorities without knowing what position they would have in the society, i.e. without knowing what gender, ethnicity, social status or lifestyle preferences would later be theirs.

Rawls, J. 1971, *A Theory Of Justice*, Belknap Press of Harvard University Press, Cambridge, Massachusetts, USA.

Automated Moral Judgements

Challenges faced by algorithmic implementations:

- Insufficient knowledge and/or computational resources for the situation at hand.
- Moral dilemmas facing an agent result in the sacrificing of something important.
- The morals being modelled by the system are wrong due to insufficient training data, or flawed folk logic or flaws in the extrapolation processes.
- Loss of understanding or control of the ethical system due to complexity or due to extrapolation of values beyond the current preferences.

Brundage, M. 2014, Limitations and risks of machine ethics, Journal Of Experimental & Theoretical Artificial Intelligence, Vol. 26, No. 3, pp.355-372.

Design Guidelines: accessibility, universality and inclusivity

Proponents of accessible design, universal design or inclusive design aim to achieve artefacts or environments which can be used frequently, comfortably and economically by as many people as possible.

The seven principles of universal design are:

Principle 1: Equitable Use.

Principle 2: Flexibility in Use.

Principle 3: Simple and Intuitive Use.

Principle 4: Perceptible Information.

Principle 5: Tolerance for Error.

Principle 6: Low Physical Effort.

Principle 7: Size and Space for Approach and Use.

Preiser, W.F.E. and Smith, K.H. eds 2011, Universal Design Handbook: second edition, MacGraw Hill, New York, New York, USA.

Design Guidelines: data transparency

Several organisations have put forward ethical recommendations in relation to data gathering, data handling and data providing.

Collection Limitation Principle	There should be limits to the collection of personal data and any such data should be obtained by lawful and fair means and, where appropriate, with the knowledge or consent of the data subject.
Data Quality Principle	Personal data should be relevant to the purposes for which they are to be used, and, to the extent necessary for those purposes, should be accurate, complete and kept up-to-date.
Purpose Specification Principle	The purposes for which personal data are collected should be specified not later than at the time of data collection and the subsequent use limited to the fulfilment of those purposes or such others as are not incompatible with those purposes and as are specified on each occasion of change of purpose.
Use Limitation Principle	Personal data should not be disclosed, made available or otherwise used for purposes other than those specified in accordance with Paragraph 9 except: a) with the consent of the data subject or b) by the authority of law.
Security Safeguards Principle	Personal data should be protected by reasonable security safeguards against such risks as loss or unauthorised access, destruction, use, modification or disclosure of data.
Openness Principle	There should be a general policy of openness about developments, practices and policies with respect to personal data. Means should be readily available of establishing the existence and nature of personal data, and the main purposes of their use, as well as the identity and usual residence of the data controller.
Individual Participation Principle	Individuals should have the right: a) to obtain from a data controller, or otherwise, confirmation of whether or not the data controller has data relating to them and b) to have communicated to them, data relating to them and c) to be given reasons if a request made under subparagraphs (a) and (b) is denied and to be able to challenge such denial and d) to challenge data relating to them and, if the challenge is successful to have the data erased, rectified, completed or amended.
Accountability Principle	A data controller should be accountable for complying with measures which give effect to the principles stated above.

Organization For Economic Cooperation & Development OECD 2013, guidelines on the protection of privacy and transborder flows of personal data, OECD.

Design Guidelines: algorithmic transparency

Algorithms have ethical implications because even something as simple as a numerical threshold can act as a divide between people.

Four general principles called FATE are now components of several guidelines including the EU's General Data Protection Regime (GDPR):

Fairness: impartial and just treatment or behaviour without favouritism or discrimination.

Accountability: ability of an automated system to explain how its decisions were made based on the data which was provided by the person or persons.

Transparency: ability of the automated system to make its decisions visible and to explain how they were made.

Explainability: ability of the automated system to interact with the person or persons in simple terms which are easy to understand and intuitive for humans.

Design Guidelines: trust

Complex automations can stimulate human trust by communicating and behaving in ways which support the six basic forms:

- trusting beliefs;
- trusting intention;
- trusting behaviour;
- system trust;
- dispositional trust;
- situational decision to trust.

McKnight, D.H. and Chervany, N.L. 1996, The meanings of trust, Report MISRC 9604, University of Minnesota MIS Research Center, Minneapolis, Minnesota, USA.

Design Guidelines: environment

Justice	Are all human beings involved in this situation being treated equally and, if not, why not? Are all living creatures involved in this situation being treated equally and, if not, why not?
Sustainability	What are the immediate and long-term effects of the problem before us? Who, humans and otherwise, is affected today by the problem and who will likely be affected by this problem in the future?
Sufficiency	Will the decision permit all those involved, especially the poor, to have enough resources on which to live and flourish? Is there any aspect of the decision that indicates the presence of waste or excess?
Compassion	What duties do we have to the other creatures likely to be affected by our actions? What does sufficiency mean for other creatures, especially those threatened with extinction? What would it mean to extend the principle of compassion to non-human creatures?
Solidarity	Who are all the human stakeholders involved in this situation? Who are all the natural stakeholders? Is there a community of life (ecosystem) involved? Are there any stakeholders, human or non-human, who are especially vulnerable?
Participation	Do all stakeholders in this decision actually have a say in how the decision is going to be made? Are there any stakeholders who cannot represent themselves? Or who have little power? How will their interests be represented in the decision-making process?

Aesthetics, Finitude, Pain/Pleasure And Need



Memphis Style High Back Chair

Autonomy, Authority, Care, Interest, Need And Rights



Covid19 Tracker App

Agency, Authority and Autonomy



Airbus A320

Airbus says “Automation should allow the operator to use the safe flight envelope to its full extent”.

Hard limits in the avionics ensure that the aircraft’s limitations are not exceeded by the pilot’s control actions..



Boeing 737

Boeing says “The pilot is the final authority for the operation of the aeroplane”.

The pilot has full control of the aircraft thus can perform actions which exceed the aircraft’s limitations.

Flourishing, Harmony, Natural Law, Need and Tradition



Aibo

Friedman, B., Kahn, P.H. and Hagman, J. 2003, Hardware Companions? What online AIBO discussion forums reveal about the human-robotic relationship, In Proceedings of the SIGCHI Conference On Human Factors In Computing Systems, Ft. Lauderdale, Florida, USA, April 5th to 10th.

Thank you.

