TEU0031: What’s the Internet Doing to Me?

Data Ethics

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Why Ethics?

• Because new Internet technologies have a profound impact on the way we live, on the relationships we have, on the societal & political processes we engage in.

• For Internet tech innovators?
  • First: because it is good for the image of your business (instrumental goal)
  • Second: because it actually improves the service you provide! (substantive goal)
  • Third: because it is the good thing to do, it contributes to your idea of a better society and being a good person (normative goal)
Web as an Application Platform – HTML5
Companies harvest and utilise personal data on a **massive scale**.

Growing concerns about the **collection, linking, use and leakage** of personal data from **mobile devices, bio-sensors, cameras, GPS trackers and social media**.

Machine Learning deliver new levels of **insights and predictions** about an individual’s behaviour and also feed increasingly **personalised AI-driven interactive digital experiences**.
Societal and Ethical Challenges of AI and Big Data

• Rate of innovation increasingly outpaces public policy debate and the development of new regulation

• Individuals and groups struggle to understand the impact of personal information processing

• Companies, especially SMEs, often lack the knowledge and expertise needed to address these complex legal and ethical issues.
Example: Gender in Google Translate

- Some languages, like Turkish, don’t have gender-specific pronouns.
- Google Translate has to guess the gender when translating into English.
- Statements allocating gender to role reveal gender bias.
- What is the source of this?
- Is it a problem?

Sample Google Translate output:

- He is a soldier
- She’s a teacher
- He is a doctor
- She is a nurse

Algorithmic Power on Behaviour

• “Race to the Bottom ... of the Brain Stem” Tristian Harris
• 70% of YouTube views are based on algorithmic recommendations
• Business model maximises video views to maximise ad views
• Outrage/fear/anger the most reliable reactions that drive us to keep watching
• -> Recommender algorithm inevitably drive us to content that builds outrage to keep us watching

• Evidence to US Congress: https://www.youtube.com/watch?v=WQMuXNiYoz4
Example: Cambridge Analytica

- Academic research into Psychographics (U. Cambridge) revealed the link between philological profiles and Facebook profiles.
- Correlated major psychological types to elements in the social graph: Openness, Conscientiousness, Extroversion, Agreeableness and Neuroticism.
- Cambridge Analytica applied psychographics to help target political ads in 2016 US elections.

Data Risks: Algorithmic selection of digital content

- Manipulation of individuals or groups,
- Diminishing variety that creates biased views and distortion of reality,
- Constraints on communication and freedom of expression,
- Threats to privacy and data protection rights,
- Social discrimination,
- Violation of intellectual property rights,
- Impact on the human brain and cognitive capacity and
- Algorithmic power over human behavior and development.

Ethics in AI/Big Data: Governance Policy

Big Data Governance is a relatively established field

- International Standards
- Data Protection Legislation – e.g. GDPR

AI Governance spurred by convergence of factors

- Successes of machine learning in some human level tasks
- Growing AI adoption in industry
- Examples of AI demonstrating bias or life threatening errors
- Predictions of human worker displacement

Last 3 years,

- Initiatives emerge to address AI Governance
- Industry, national governments, international bodies, standards
- “Ethical” and “Trustworthy” characteristics to the fore
- Tension with perception of AI as a strategic asset by world powers
AI Governance: Layered Model

Society

Social & Legal Layer
- Norms
- Regulation
- Legislation

Ethical Layer
- Criteria
- Principles

Technical Layer: Algorithms and Data
- Data governance
- Algorithm accountability
- Standards

Asilomar Principles

Ethical Principles
• Safety
• Failure Transparency
• Judicial Transparency
• Responsibility
• Value Alignment
• Human Values
• Personal Privacy
• Liberty and Privacy
• Shared Benefit
• Share Prosperity
• Human Control
• Non-subversion
• AI Arms Race

Researcher-led Principles - 2017:
• Research,
• Ethical,
• Longer Term

https://futureoflife.org/ai-principles/
IEEE Ethically Aligned Design - 2019

Principles:
• Human Rights
• Well-being
• Data Agency
• Effectiveness
• Transparency
• Accountability
• Awareness of Misuse
• Competence

Comprehensive survey including:
• Classical Ethics
• Affective computing
• Design Methods
• Sustainable development
• Embedding Values
• Policy and Law

https://ethicsinaction.ieee.org/
Ethical Principles mapped from EU Charter of Fundamental Right

International AI Policy Differentiator for EU

Ethical AI, alongside Lawful AI and Robust AI

Requirements

• Human Agency and Oversight
• Technical Robustness and Safety
• Privacy and Data Governance
• Transparency
• Diversity, Non-Discrimination and Fairness
• Societal and Environmental Well Being
• Accountability

EU Ethics Guidelines for Trustworthy AI

Methods
• Technical:
  • Architecture,
  • Ethics/privacy-by-design,
  • Explanation,
  • Testing/validation,
  • QoS Indicators
• Non Technical:
  • Regulation
  • Code of Conduct
  • Standardisation
  • Certification
  • Accountability via Governance Frameworks
  • Education & Awareness
  • Stakeholder Participation
  • Diverse Design Teams

Assessment Pilot Commencing
OECD AI Recommendations - 2019

Principles
• Inclusive Growth, Sustainable Development and Well-being
• Human-centred values and fairness
• Transparency and Explainability
• Robustness, Security and Safety
• Accountability

Recommendations
• Investing in AI R&D
• Fostering a digital ecosystem for AI
• Shaping an enabling policy environment for AI
• Building human capacity and preparing for labour market transformation
• International cooperation for Trustworthy AI

https://www.oecd.org/going-digital/ai/principles/
Reports in abundance

https://ai-hr.cyber.harvard.edu/primp-viz.html
AI/Data Ethics – where next?

• Many countries and transnational bodies working on principles or guidelines
• Some taking a wait-and-see approach
  • BUT incoming President of European Commission, Ursula von der Leyen, wants to legislate for EU regulation ‘within 100 days’
• Danger of becoming a subject for international geopolitics
• AI industry has failed so far to self-regulate – companies trying their own, e.g. Facebook ‘Supreme Court’
• Little guidance for industry practitioners
ISO/IES SC42 Artificial Intelligence

- subsumed Big Data

Current activities:

- Overview of Trustworthy AI
- Risk Management
- IT Governance
- Neural Net Robustness
- Bias in AI
- AI Ethical and Societal
- Social Responsibility

https://www.iso.org/committee/6794475.html
Data Ethics: Organizational Viewpoint

Society’s Ethical Framework

Organisation’s Ethical Framework

Business
Information
Technology

Strategic
- Business Strategy & Governance
- Information Strategy & Governance
- IT Strategy & Governance

Tactical
- Business Architecture & Planning
- Information Architecture & Planning
- Technology Architecture & Planning

Operations
- Management & Execution of Business Processes
- Management & Application of Information
- Management & Exploitation of IT Services

Customer
- Process Outcome
- Information Outcome

Expectations

Regulation & Laws
Standards & Codes
Customer Education
Lobbying
Standard Practices
Customer Feedback
AI Governance: Societal Challenges and Gaps

- Nature of Oversight Authority
- Identification of and Prioritising between affected stakeholder
- Collective impacts, e.g. on social cohesion
- Governmental use of AI
- Malevolent AI use
Challenges in Regulating AI

- **Definition**: Difficult to reach stable consensus on what defines AI
- **Discreetness**: Growing access to AI skills and computing power, it can be developed out of sight
- **Diffuseness**: AI used in a diffuse set of locations and jurisdictions
- **Discreteness**: Impact of an AI component only apparent when assembled into a system
- **Opacity**: Modern machine learning yields results without clear explanations
- **Forseeability**: AI-driven autonomous system can behave in unforeseeable ways – ‘liability gap’
- **Control**: AI can work in ways out of control of those responsible for them
- **Pacing**: AI tech develops faster than societies ability to regulate it
- **Securitisation**: International competition as AI perceived as a strategic economic/military resource
- **Innovation**: Perceived impediment to AI-based innovation and its economic and social benefits
- **Asymmetry**: Power concentration in digital platforms benefiting from network effects

Role of Data in AI Governance

• Problem: for Data, **Possession** is 9.9 tenths of the Law

• Power of AI grows with the volume (and quality) of its training data

• Controlling the flow of Data is the Key to Governing AI

• Platforms emerging for maintaining possession Personal Data:
  • Inrupt
  • Hub-of-all-things
Role of Data in AI Governance

BUT

• These are Tech solutions to ethical, legal and societal problems?
• Are there Real Market-driven Pathways to adoption?
• Do they Governance structures or Democratic oversight?

INSTEAD

• Problem: for Data, Possession is 9.9 tenths of the Law
Could a form of Data Ownership Help?

Example: Data Ownership Right for Data Sharing Contracts in European Data Economy:

1. Non-exclusive Data Ownership Right
2. Secured though evidence of production/contribution – trace logs
3. Right is coupled with an obligation to share data under fair, reasonable and non-discriminatory terms


Organizations could transfer governance responsibility to more representative groups:

• Data Trusts
• Data Co-ops
• Data Unions – Data as Labour - https://blog.singularitynet.io
Example: Data Trusts

- **Truata.com: Anonymised Data Analytics Services**
  - Offers large clients secure, anonymised analytics services of their own data
  - Outsources data protection risks without losing all benefits of data analytics
  - Part of business model is a data trust which is constituted separate to the business/profit driven part of the company
  - Trust gives clients (and their customers) confidence that the rules can't change for business reasons
Example: MIDATA Medical Data Coop

https://www.midata.coop
Summary

• As Internet becomes more powerful and ubiquitous, risks of individual and societal impact and harm grows

• Becoming a priority for governments and companies for Digital Content, AI, Big Data, IoT

• Governments world-wide grappling with how to address these problems – regulation poses major challenges

• Data is Key but new forms of Governance and Oversight yet to emerge
Thanks for your attention!

Any questions or feedback?