



ETHICAL ISSUES IN SOFTWARE DESIGN & DEVELOPMENT: A FOCUS ON JUSTICE SYSTEMS

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Overview

In focus:

- Conceptualising ethics
- Software applications in justice systems
- Ethical challenges
- Mitigations & remedies

Conceptualising Ethics

▶ The IEEE Global Initiative's mission is:

▶
“To ensure every stakeholder involved in the design and development of autonomous and intelligent systems is educated, trained, and empowered to prioritize ethical considerations so that these technologies are advanced for the benefit of humanity.”

The IEEE global initiative on ethics of autonomous and intelligent systems. IEEE Standards Association (2019)

<https://standards.ieee.org/industry-connections/ec/autonomous-systems.html>

Conceptualising Ethics

- Ethical theories:
 - Deontology?
 - Utilitarianism?
 - Virtue ethics?
- How can these be integrated into an overarching ethical framework?
- Different perspectives and contexts should be considered.

Software applications in justice systems

- ▶ **Risk assessment software are applied in key areas of decision making:**
 - ▶ Policing (e.g., bail decisions)
 - ▶ Sentencing
 - ▶ Probation (e.g., programmes & early revocation)
 - ▶ Prison (e.g., parole)
- ▶ **Predictive policing software identify individual and locational crime risks**



Machine Bias

There's software used across the country to predict future criminals. And it's biased against blacks.

by Julia Angwin, Jeff Larson, Surya Mattu and Lauren Kirchner, ProPublica

May 23, 2016

The Guardian view on crime and algorithms: big data makes bigger problems

Editorial

Machines can make human misjudgments very much worse. And should never be trusted with criminal justice



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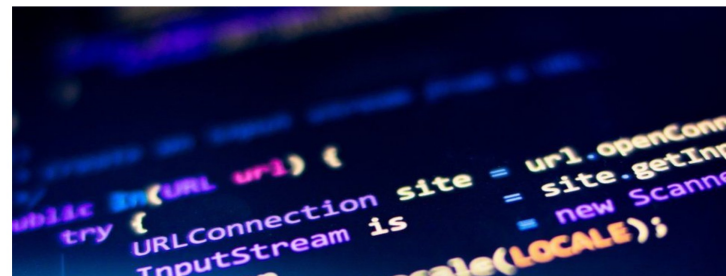
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US lawmakers to probe algorithm bias

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Technology

Artificial intelligence: Algorithms face scrutiny over potential bias

© 20 March 2019



Human rights group claims the algorithms threaten a 'tech veneer to biased practices'



Discriminating algorithms: 5 times AI showed prejudice

Artificial intelligence is supposed to make life easier for us all – but it is also prone to amplify sexist and racist biases from the real world



TECHNOLOGY 12 April 2018, updated 27 April 2018

By Daniel Cossins

Software 'no more accurate than untrained humans' at judging reoffending risk

Program used to assess more than a million US defendants may not be accurate enough for potentially life-changing decisions, say experts



Ethical Challenges

- **Some examples:**
 - Bias
 - Denial of autonomy
 - Rights violations
 - Lack of transparency and accountability

Ethical Challenges

- **Some relevant concepts:**
 - Digital capital (van Deursen & van Dijk 2014)
 - Digital divide, power asymmetries, & unequal distribution of ethical risks
 - Data justice (Dencik 2016)
 - Fair representation in data to avoid harms such as unethical dataveillance (Taylor 2017)

Mitigation strategies for ethical software design

➤ **Design level**

- Technical approaches (e.g. debiasing data).

➤ **Societal level**

- Structural transformation (e.g. legal frameworks, democratisation & comprehensive audits).



Thank you

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