THIS IS THE FIRST PART OF A THREE-PART SERIES ON AI AND ETHICS

Mon, Oct 28	13:50-14:10	W-4	Workshop: Ethics and Societal Concerns
Wed, Oct 30	11:55-12:25	AI-13	A Practical Framework And Approach T... Responsible AI
Wed, Oct 30	12:35-13:35	AI-14	Panel: Ethics and Social Responsibilities in Deploying AI

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"With great power comes great responsibility"

-Uncle Ben, Spider Man

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AI ETHICS IN THE NEWS

What happens when an algorithm cuts your healthcare?

The Verge, Mar 21, 2018

Is your software racist?

LI ZHOU 02/07/2018

Don't Grade Teachers With a Bad Algorithm

Bloomberg, May 15, 2017

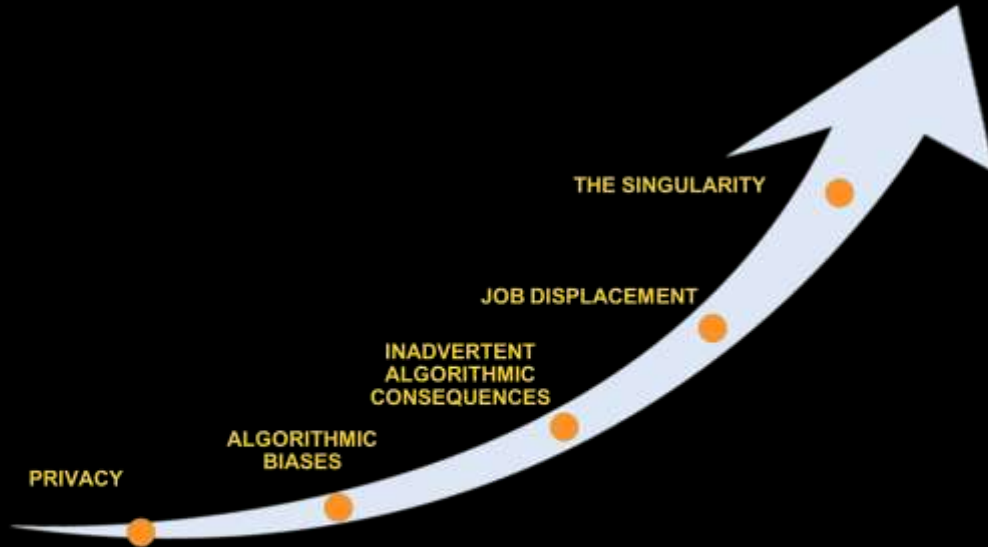**Who will you decide to kill with your self-driving car?**

Verge, Aug 9, 2016

How to prevent artificial-intelligence-driven machines from taking over the world

Market Watch, May 18, 2018

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ISSUES AND STUDIES ON
AI AND ETHICS

THE SINGULARITY

JOB DISPLACEMENT

INADVERTENT
ALGORITHMIC
CONSEQUENCES

ALGORITHMIC
BIASES

PRIVACY

A directory of AI Ethics Guides can be found at : algorithmwatch.org/en/project/ai-ethics-guidelines-global-inventory

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AI IS NOT ONE THING

Artificial Intelligence

Today's AI = ML

Machine Learning

Search & Optimization

Natural Language Processing

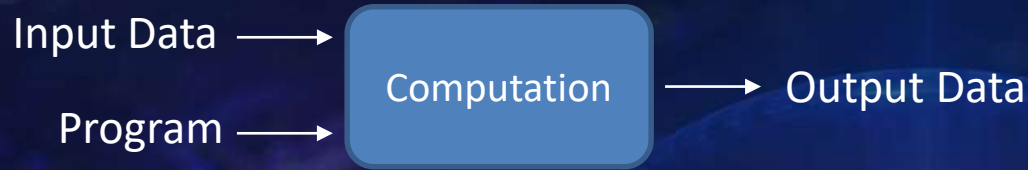Knowledge Representation

Expert Systems
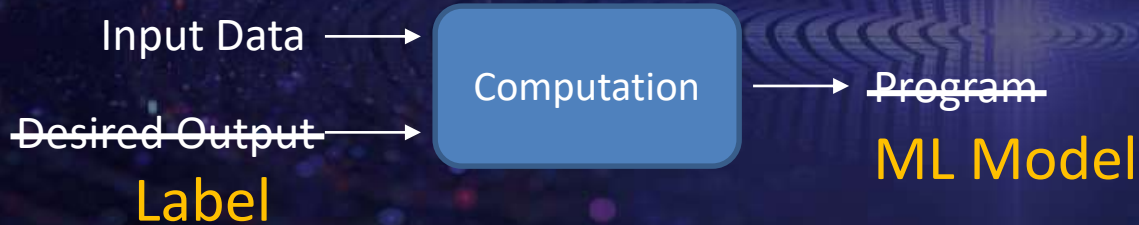
Information Retrieval

Machine Vision

Robotics

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TRADITIONAL PROGRAMMING VS. MACHINE LEARNING

SOME CHALLENGES PERTINENT TO MACHINE LEARNING

Right to use
Bias in the data
Bias in data selection

Right to know
Explainability
Bias in the Model

Impact on the Use
- Precision
- Exception

Input Data → Computation → ML Model → AI Application

Label →

Input Data'

Label'
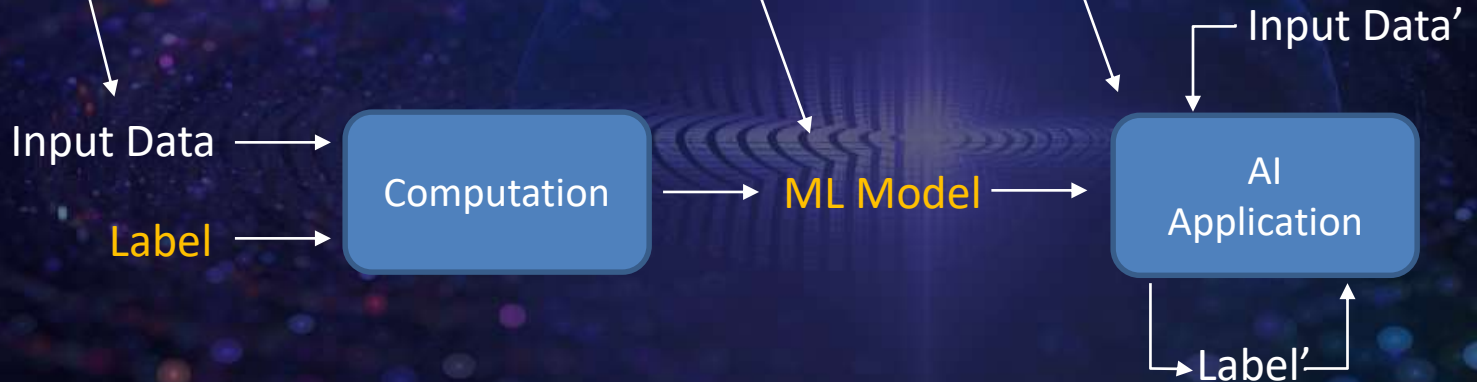
COMMON AI-RELATED ETHICAL AND SOCIETAL ISSUES

THE SINGULARITY

JOB DISPLACEMENT

INADVERTENT
ALGORITHMIC
CONSEQUENCES

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RESPONSIBLE AI MANDATE

Stewardship

As AI extensively relies on data and analytical models, they need to be protected to ensure data privacy, security and compliance

Fairness

AI bears the risk of amplifying human biases, potentially resulting in unfair and unintended consequences

Transparency

Success of AI adoption is directly linked to trust. It is imperative to be transparent about the use and decision of AI and the associated data supply chain.

Accountability

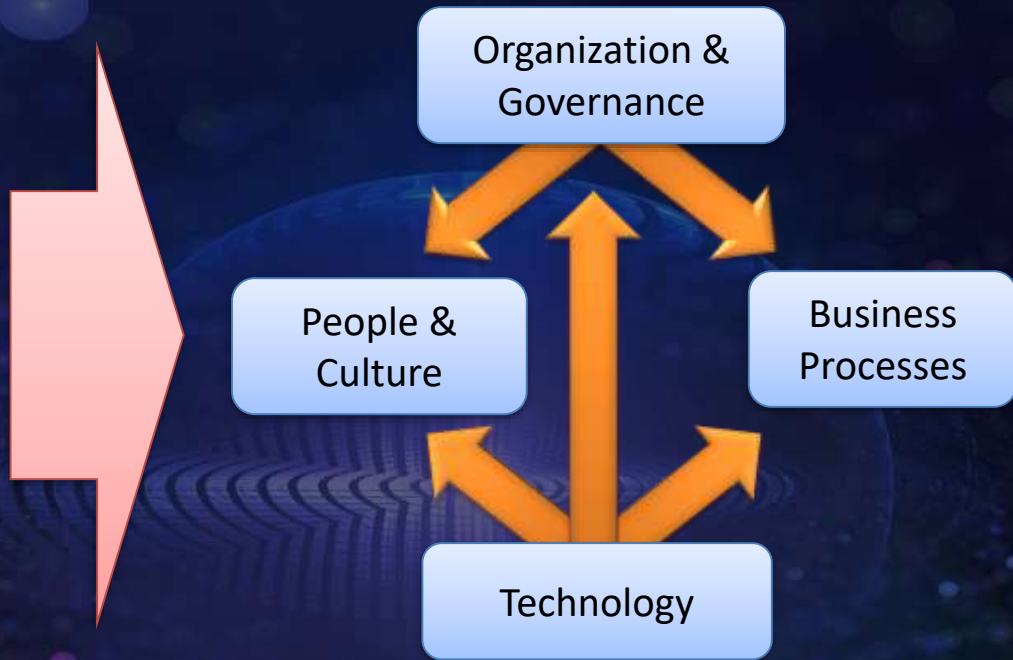Given its novelty and risk associated with AI, organizations need to properly govern and self-regulate AI programs

Agency

Embracing human + machine interaction through amplifying human's talents and ability, empowerment, and education.

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OPERATIONALIZING RESPONSIBLE AI MANDATE

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Organization & Governance

People & Culture

Business Processes

Technology

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ORGANIZATION & GOVERNANCE

Redesign and introduce new roles

- Start from Foundational Values and Guiding Principles
- Define the Role of Chief Data/AI Officer
- Create Multi-disciplinary Ethics Advisory Groups
- Measure: risks, liability, mitigation and lapses

Define Scope, Authority and Process

- Scope: Collection, Sharing and Use
- Include: Repurposed and combination of data sets
- Consistence and transparent decision making
- Privacy and ethics-oriented risk and liability assessment
- Ongoing collaboration and mutual accountability
- Between internal partners as well as external

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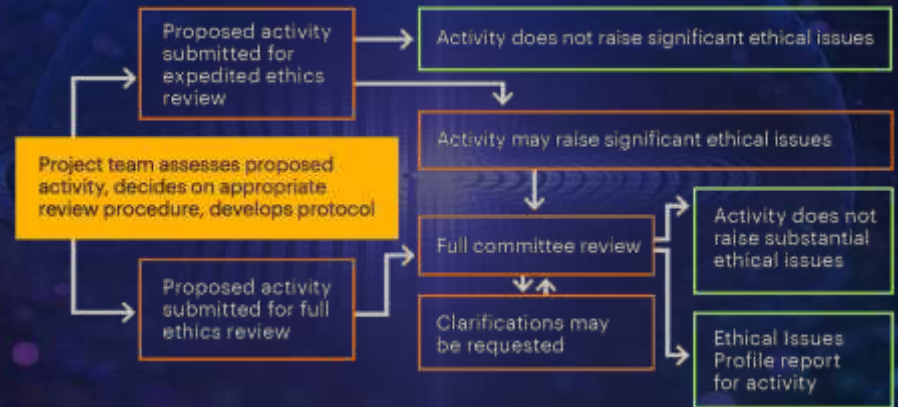
PEOPLE AND CULTURE

Educate
- Toward Ethics-Driven Organization
- Stewardship
- Diversity
- Accountability

Engage
- Recognition of issues
- Empowerment and local decision making
- Escalation and issue resolution process

Co-Create
- Agency
- Applications
- Processes
- Reskilling

CULTURE ← Alignment → **CORE VALUES**

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Business Processes

Clear and Transparent Process is Key to Trust

Governance and Compliance

- Governance Process
- Decision-making Process
- Data Ownership and Contract Management
- Case and Risk Management
- Asset (Data, Models, and Applications) Tracking
- Training Management

System Dev & Runtime Mgmt

- Requirement: Privacy, Bias, Use
- Design: Potential Attack, Harm and Abuse
- Testing: Include Fairness and Guardrails
- Versioning: Include Data & Model
- Runtime: Tracking, Monitoring, and Shutdown

Ethics Audit Sweep

- Data, Models, and Applications
- Resources and Clearance
- Application and Security Logs

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TECHNOLOGY

Process Automation
- Case management
- Workflow Management
- Governance Tool
- Asset Tracking and Monitoring

Training

System Lifecycle Mgmt

Point Tools
- Biases Awareness
- Trojan Horse Detection
- Model Explainer
- Model Drift Detection
- …

Google What-if Visualization

Accenture Counterfactual Explanation Tool

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EMPLOYEES AT HIGH TRUST ORGANIZATIONS

have
50%
higher
productivity

experience
40%
less
burnout

have
106%
more
energy
at work

experience
74%
less
stress

report
29%
higher
life satisfaction

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TO LEARN MORE ON AI AND ETHICS

- Directory of AI Ethics: https://algorithmwatch.org/en/project/ai-ethics-guidelines-global-inventory/

- IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems (ethicsinaction.ieee.org)

- "Ethically Aligned Design: A vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems (A/IS)" and the 15 associated standards for specific ethical aspects (ieeexplore.ieee.org/document/8058187)

- "The Role of Data Ethics in the Digital Age" (www.accenture.com/us-en/insight-data-ethics)

- "The Vestigial Heart" by Carme Torras, MIT Press 2018

- Santa Clara University's Markkula Center for Applied Ethics (https://www.scu.edu/ethics/ethics-resources/ethical-decision-making/a-framework-for-ethical-decision-making)

- "How to Design an Ethical Organization" https://hbr.org/2019/05/how-to-design-an-ethical-organization

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THANK YOU!

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