

The Killer App:

Technology, Drones & Ethics

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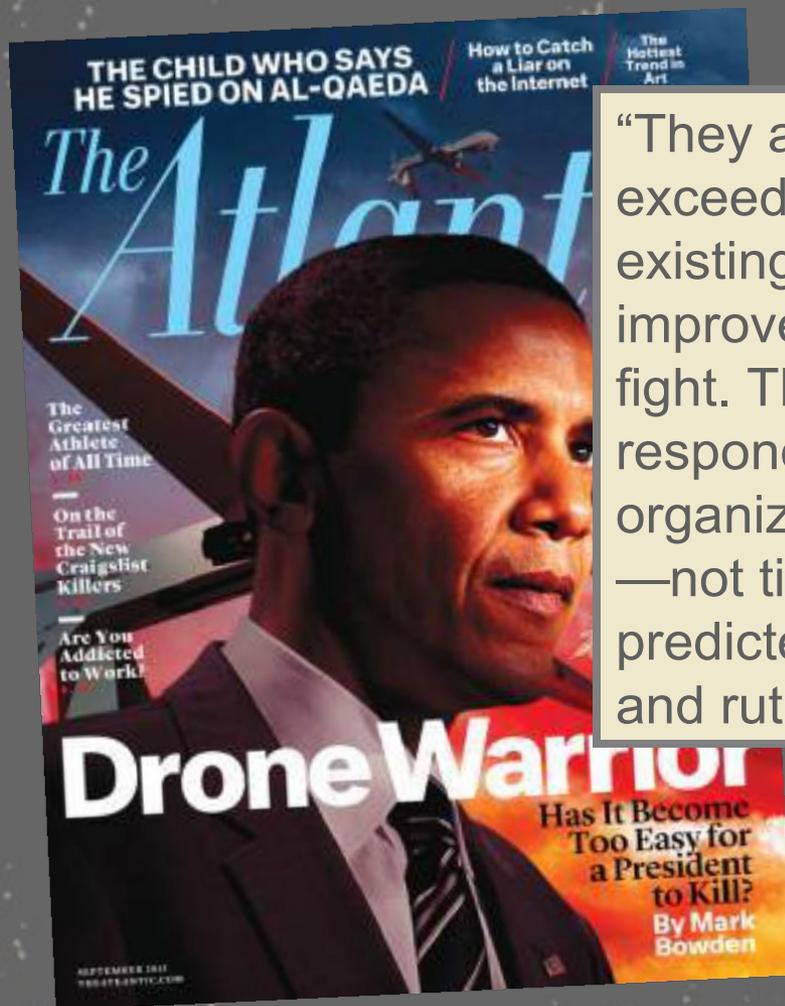
Introduction

1. Defining application of recent technological innovation: telepresence, augmented reality, HD imaging, wireless data communications, etc.



2. Literally an application that kills.
“Need to neutralize enemy combatants and terrorists?” There’s an app for that.

Introduction



“They are remarkable tools, an exceedingly clever combination of existing technologies that has vastly improved our ability to observe and fight. They represent how America has responded to the challenge of organized, high-level stateless terrorism—not timidly, as bin Laden famously predicted, but with courage, tenacity, and ruthless ingenuity” (p. 70).

Introduction

“As covert drone strikes become the norm, actions or conduct by individuals that, in other circumstances, would lead to investigation or detention are increasingly blurring into a basis for lethal targeting. The result is that an ever-greater number of individuals are vulnerable to lethal targeting, and accordingly a larger number of civilians are at risk of either being killed or harmed as a result of collateral damage, or due to mistaken beliefs about their identity or associations” (p. 75).

PART OF THE MODERN ISSUES IN CONFLICT SERIES



Civilian Impact of Drones:
Examined Costs, Unanswered Questions

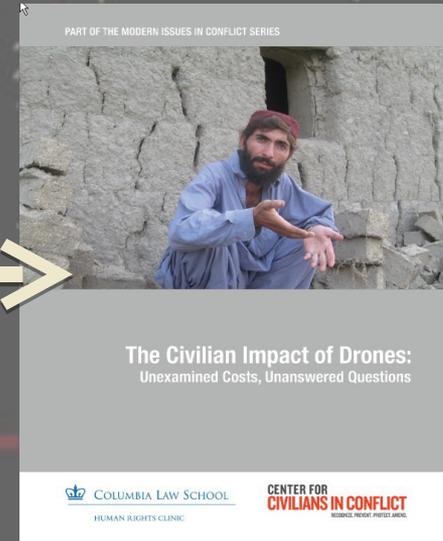
 COLUMBIA LAW SCHOOL
HUMAN RIGHTS CLINIC

**CENTER FOR
CIVILIANS IN CONFLICT**
RECOGNIZE. PREVENT. PROTECT. AMEND.

Introduction



The Drone Debate



When drones kill, who is responsible?

Who is to be praised for successful operations by drones?

Who can or should be blamed for mistakes or failures?

1. Default Setting

Default = A setting, mode of behavior or a value that is automatically assigned and operative. The *normal* way of doing things.

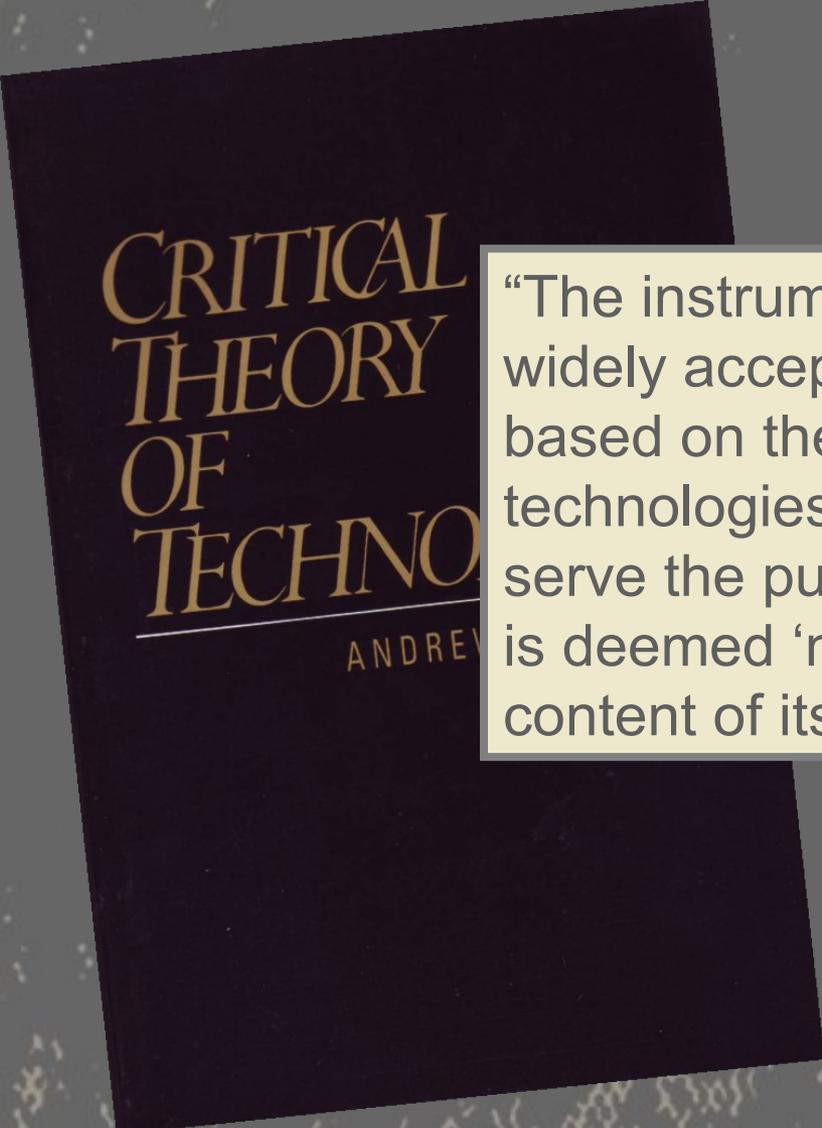
1. Default Setting

Drones don't kill people.
People kill people.

“Instrumental Theory
of Technology”



1. Default Setting



CRITICAL
THEORY
OF
TECHNOLOGY

ANDREW

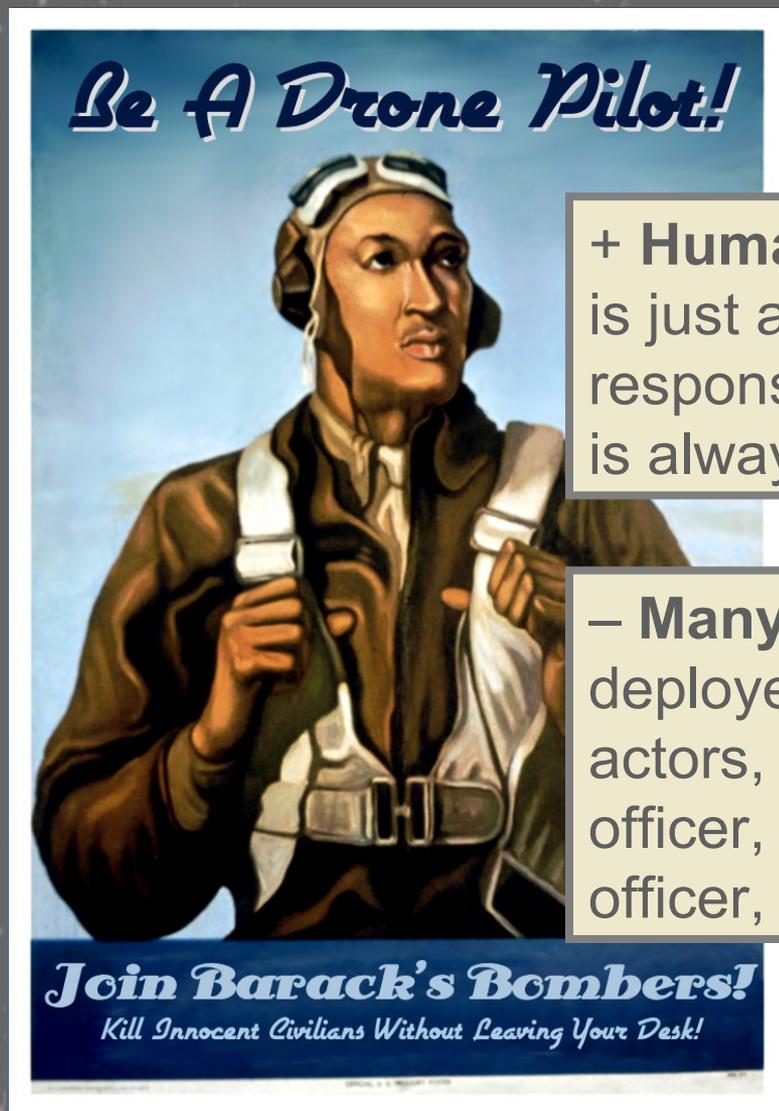
“The instrumentalist theory offers the most widely accepted view of technology. It is based on the common sense idea that technologies are ‘tools’ standing ready to serve the purposes of users. Technology is deemed ‘neutral,’ without valuative content of its own.” – Feenberg 1991

1. Default Setting



“Morality rests on human shoulders, and if machines changed the ease with which things were done, they did not change responsibility for doing them. People have always been the only ‘moral agents.’” – J. Storrs Hall 2001

1. Default Setting



+ **Human Responsibility** – The drone is just a tool that is used more or less responsibly by a human operator. There is always a human in the loop.

– **Many Hands Problem** – Drones are deployed within a network of different actors, i.e. operator, commanding officer, government agency, executive officer, president, etc.

2. Actor Network Theory

Actor Network Theory = Distribute agency and moral responsibility across a network of interacting human, institutional and machine components.

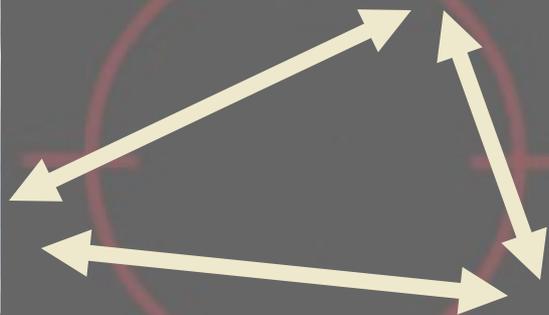
2. Actor Network Theory



Operators



Technologies



Command

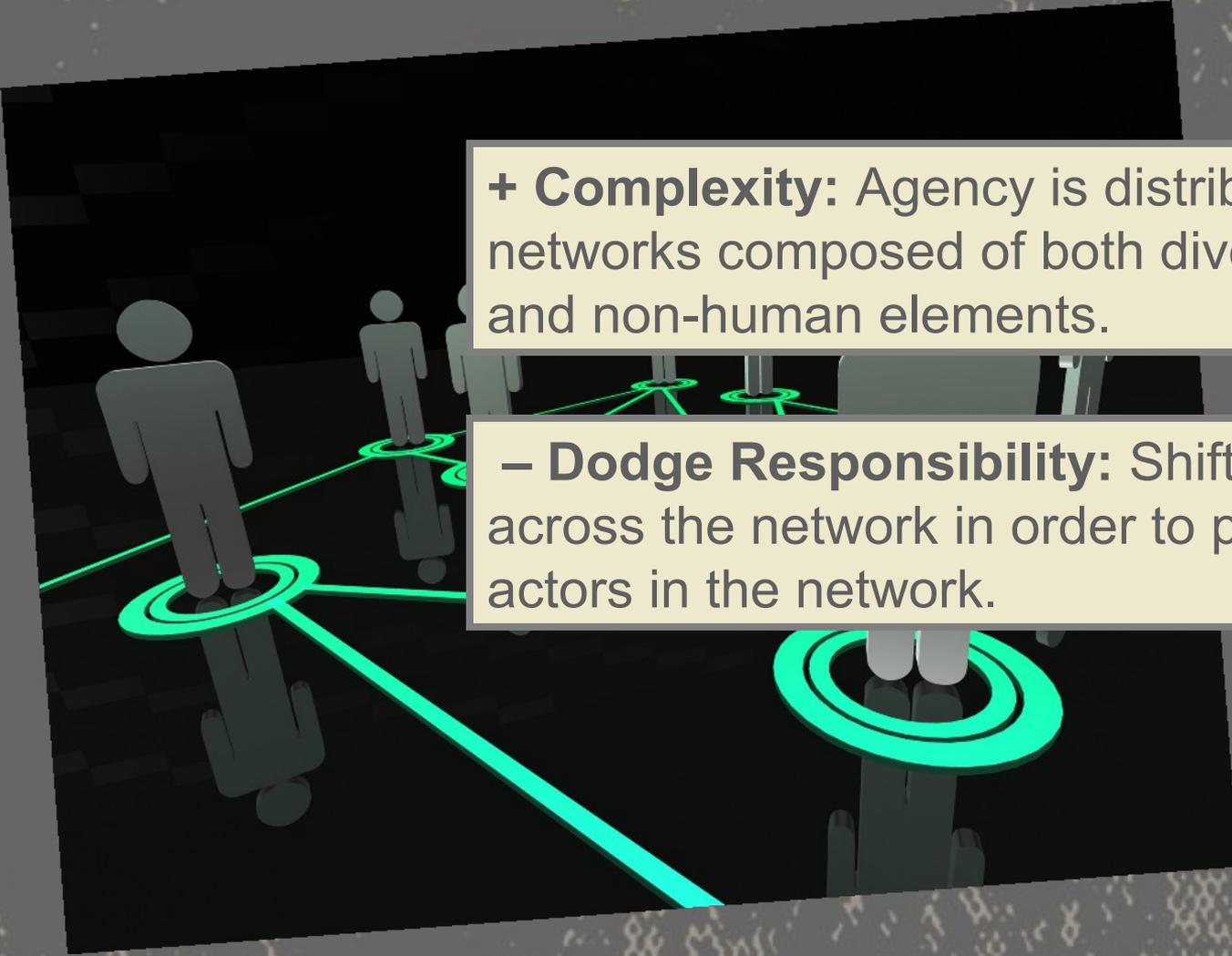
2. Actor Network Theory

Technological Determinism

“Contrary to what many people intuitively think, technologies are not simply neutral instruments that facilitate existence... Technologies do much more: they give shape to what we do and how we experience the world.” – Verbeek 2011



2. Actor Network Theory



+ **Complexity:** Agency is distributed across networks composed of both diverse human and non-human elements.

– **Dodge Responsibility:** Shift responsibility across the network in order to protect other actors in the network.

2. Actor Network Theory

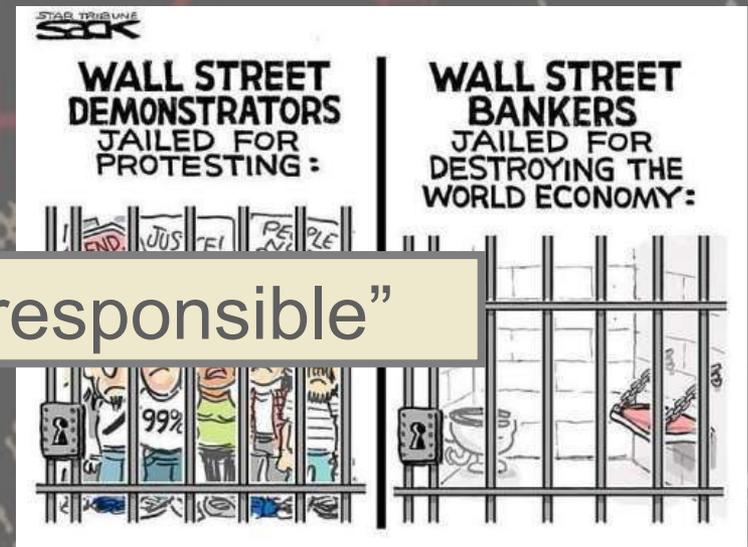
“Just following orders.”



“A few bad apples”



“No one is responsible”



3. Machine Ethics

Machine Ethics = Giving *machines* ethical principles or a procedure for discovering a way to resolve the ethical dilemmas they might encounter, enabling them to function in an ethically responsible manner through their own ethical decision making.

3. Machine Ethics

Moral Machines

Teaching Robots Right from Wrong



Wendell Wallach • Colin Allen

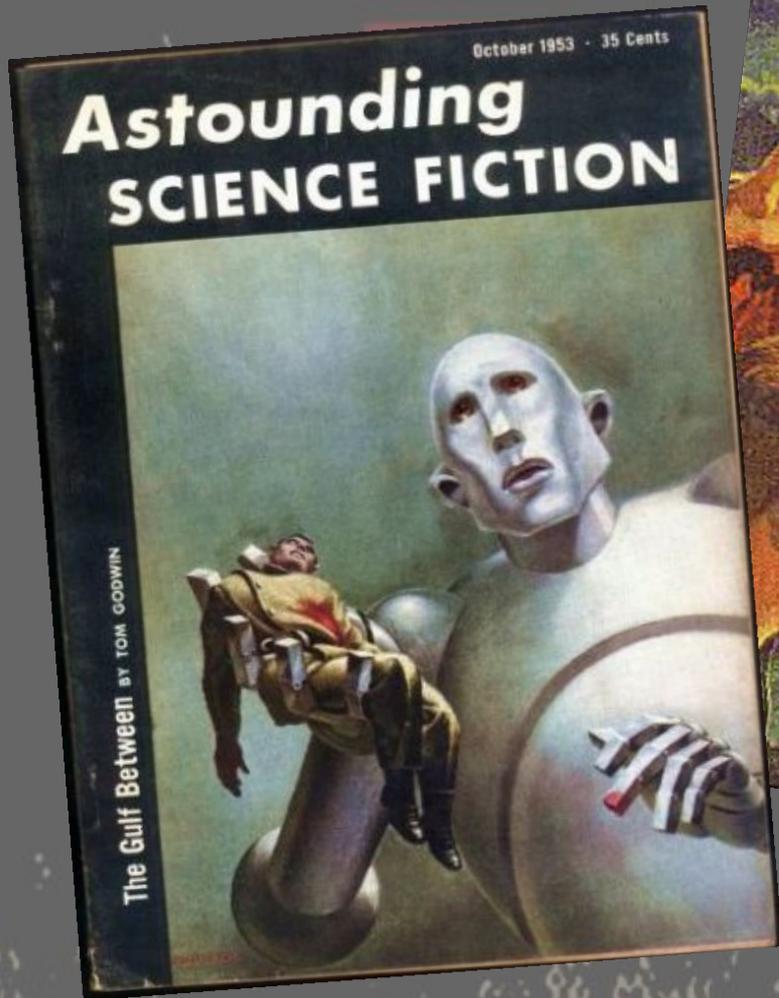
Michael Anderson
Susan Leigh Anderson, Editors

Machine Ethics

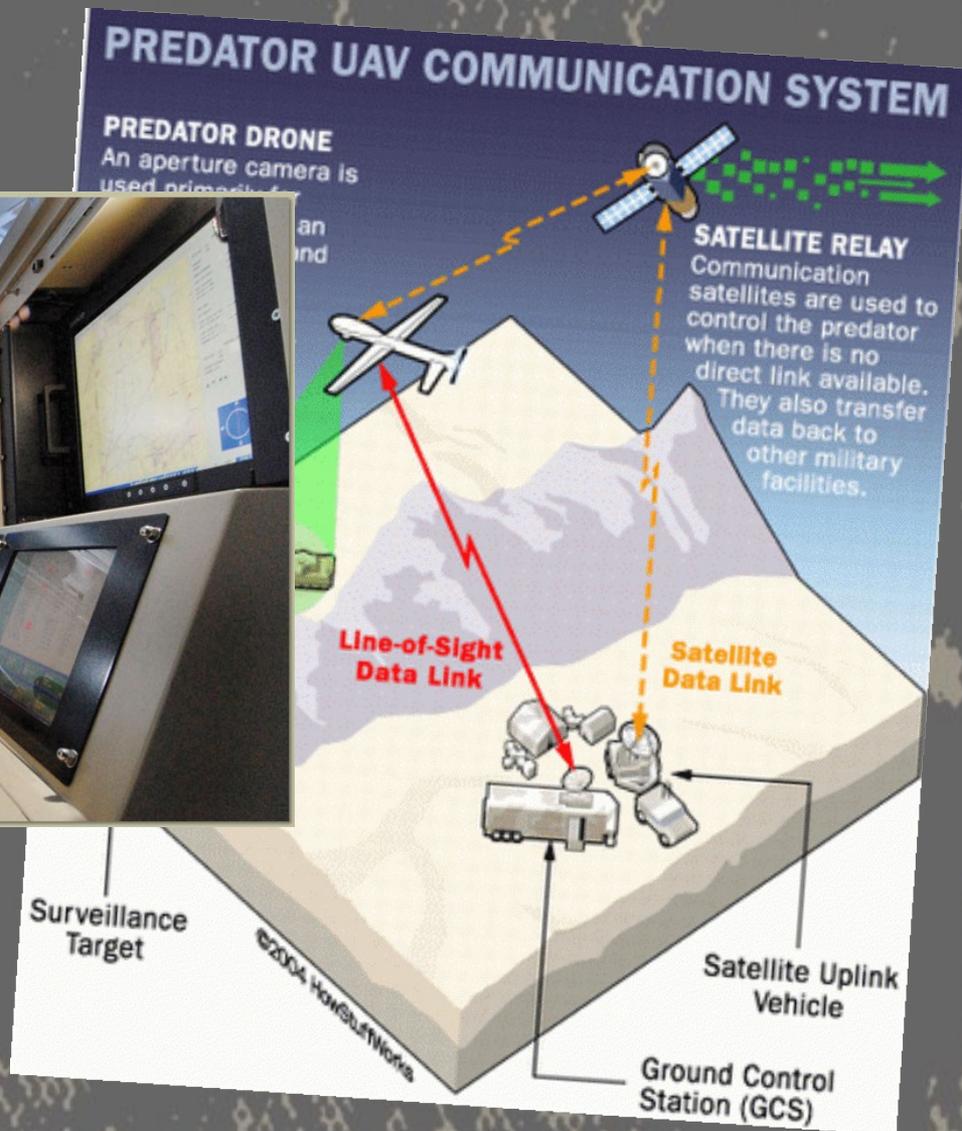


CAMBRIDGE

3. Machine Ethics



3. Machine Ethics



3. Machine Ethics

Autonomous Driving

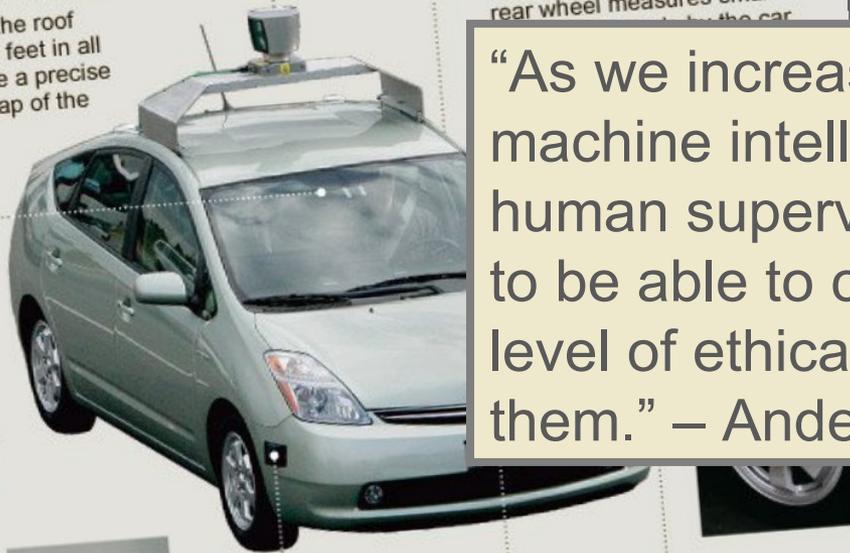
Google's modified Toyota Prius uses an array of sensors to navigate public roads without a human driver. Other components, not shown, include a GPS receiver and an inertial motion sensor.

LIDAR

A rotating sensor on the roof scans more than 200 feet in all directions to generate a precise three-dimensional map of the car's surroundings.

VIDEO CAMERA

A camera mounted near the rear-view mirror detects traffic lights and helps the car's onboard computers recognize moving obstacles like pedestrians and bicyclists.



POSITION ESTIMATOR

A sensor mounted on the left rear wheel measures small



RADAR

Four standard automotive radar sensors, three in front and one in the rear, help determine the positions of distant objects.

THE NEW YORK TIMES. PHOTOGRAPHS BY RAMIN RAHIMIAN FOR THE NEW YORK TIMES

Source: Google

“As we increasingly rely upon machine intelligence with reduced human supervision, we will need to be able to count on a certain level of ethical behavior from them.” – Anderson 2004

3. Machine Ethics

Defense
One

NEWS

THREATS

POLITICS

MANAGEMENT

TECH

+ **Artificial Autonomous Agent:**
A kind of functional morality for machines. Responsible machines.

– **Reconfigure Ethics:** Challenge standard assumptions about who or what can be considered a legitimate moral subject.



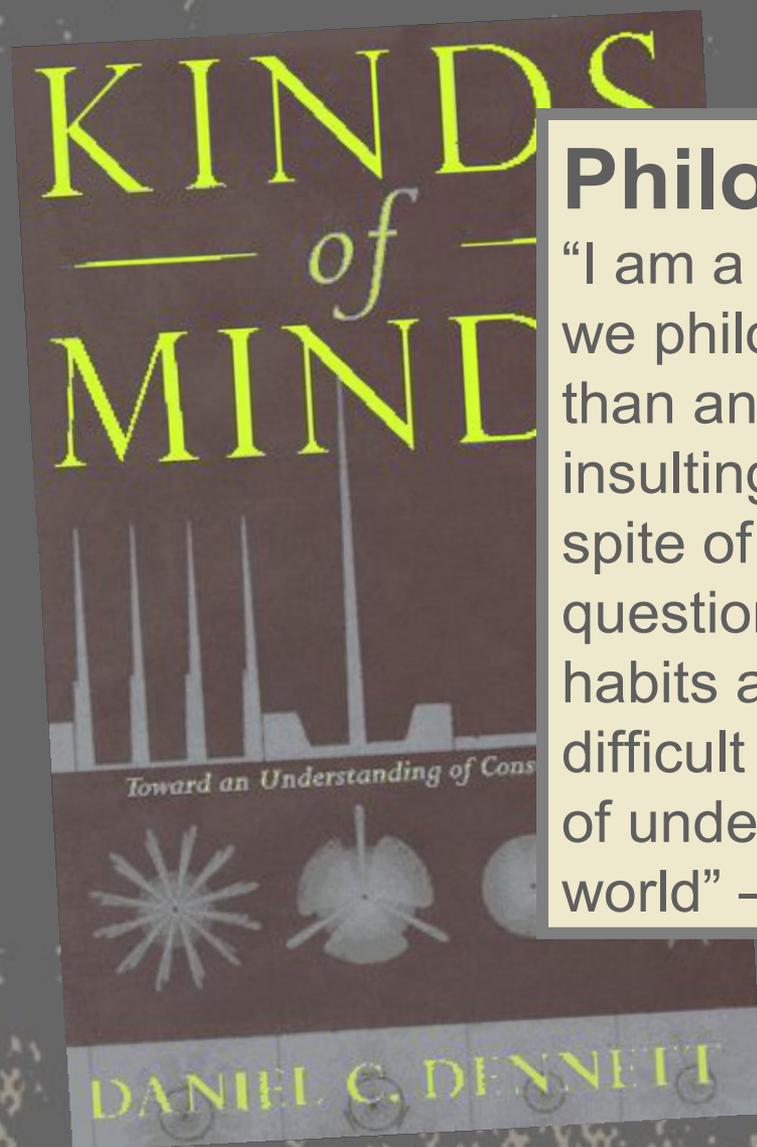
October 8, 2013

**Why America Wants Drones
That Can Kill Without
Humans**

Conclusions



Conclusions



Philosophical Objective

“I am a philosopher not a scientist, and we philosophers are better at questions than answers. I haven't begun by insulting myself and my discipline, in spite of first appearances. Finding better questions to ask, and breaking old habits and traditions of asking, is a very difficult part of the grand human project of understanding ourselves and our world” – Daniel Dennett 1996

Conclusions

More Information:

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