

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.

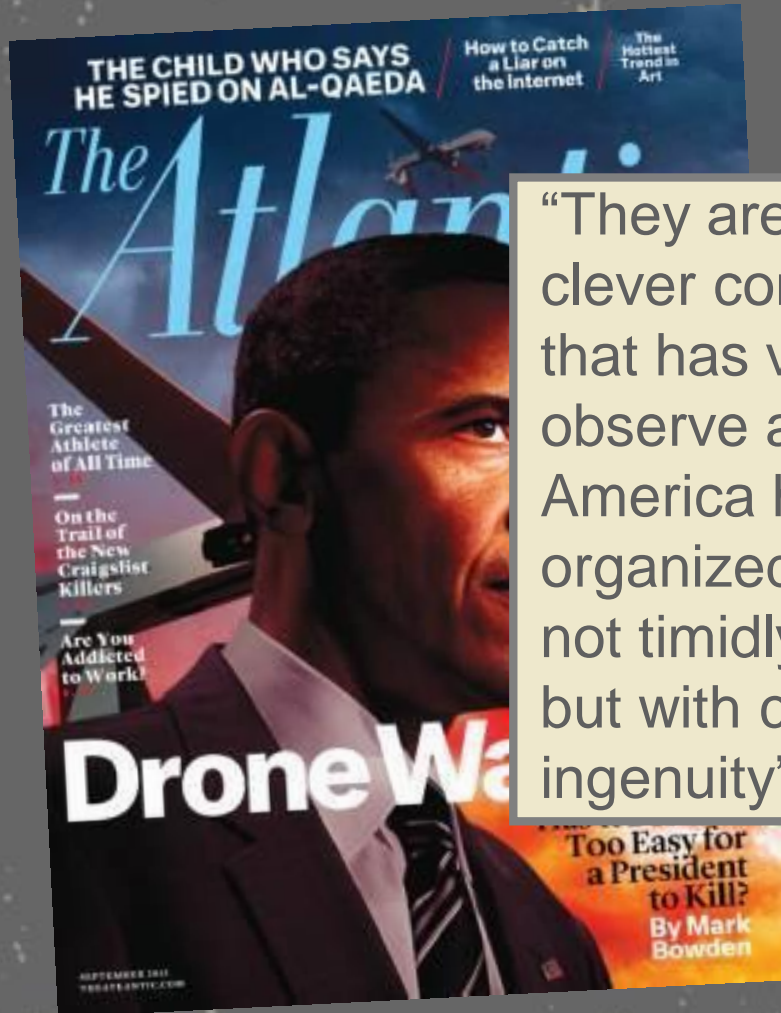


2. Literally an application that kills.
“Need to neutralize enemy combatants and terrorists?” There’s an app for that.

Introduction



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:
Uninformed Costs, Unanswered Questions



COLUMBIA LAW SCHOOL

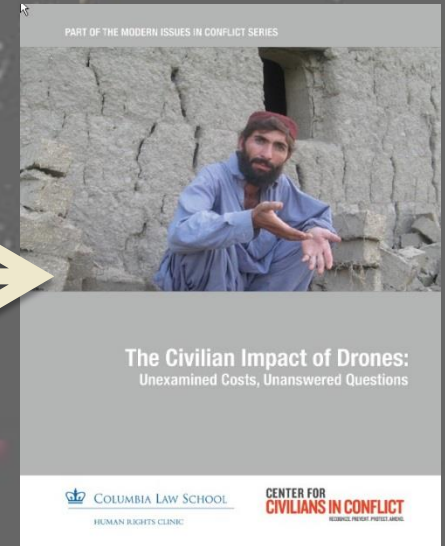
HUMAN RIGHTS CLINIC

**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.

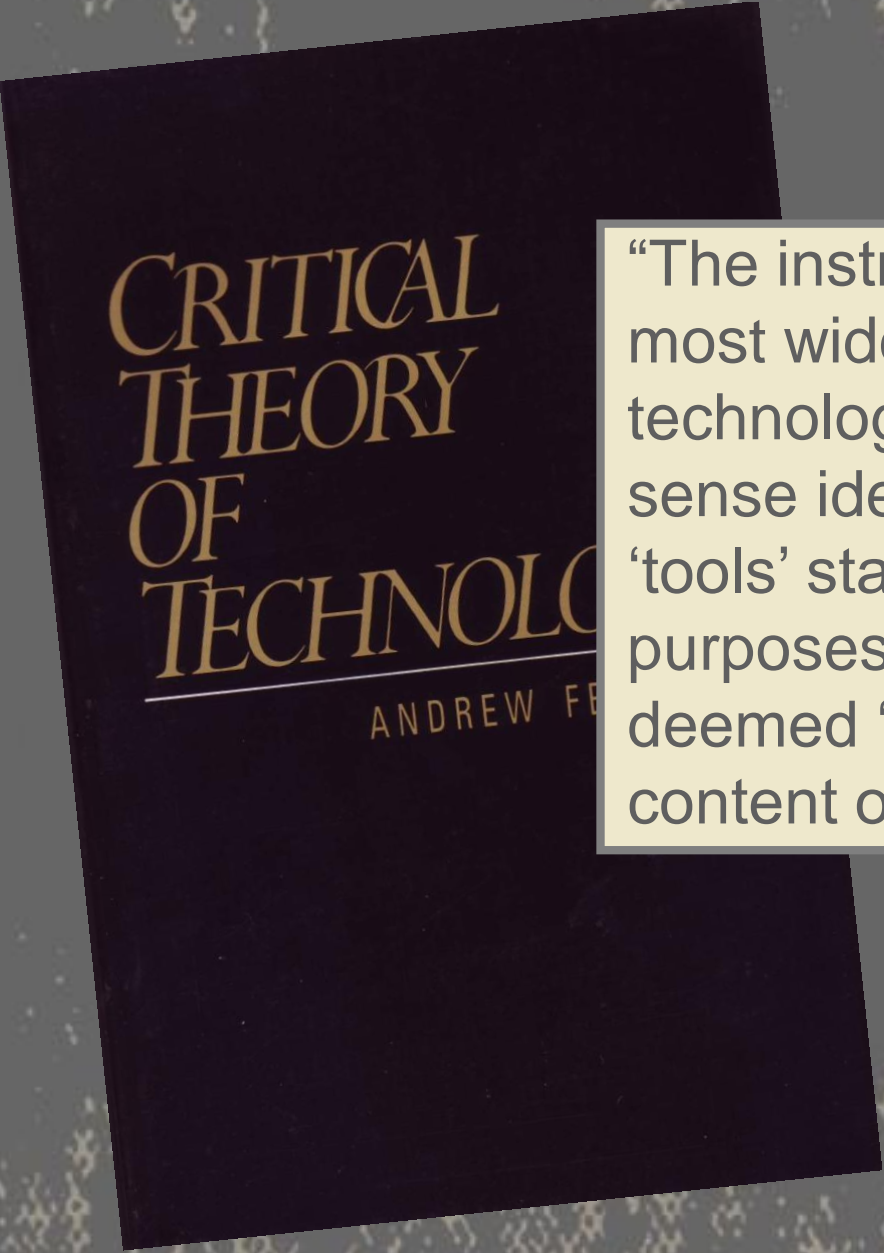
1. Default Setting

Drones don't kill people.
People kill people.

“Instrumental Theory
of Technology”



1. Default Setting

The image shows the cover of the book 'Critical Theory of Technology' by Andrew Feenberg. The title is written in a large, serif, gold-colored font, and the author's name is at the bottom in a smaller, similar font. The background of the cover is dark.

CRITICAL THEORY OF TECHNOLOGY

ANDREW FEENBERG

“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



1. Default Setting



Predator Drone

1. Default Setting



Drone Operators

1. Default Setting

CAO: 30 OCT 2012

OBJ LETHAL BURWYN – QARI MUNIB

Exp Trgr: SIGINT

Target Data

- Objective:** 3.1.1: Neutralize Taliban Shadow Leadership
- Characterization:** Taliban Sub Cdr
 - Exercises command and control over specific portion of organization
 - Reports to senior leaders
 - Has operational autonomy
 - Manages the network and executes guidance
- Significance:**
 - Qari Munib is a Taliban subcommander operating in Pech District responsible for numerous attacks on CF/ANSF. He is associated with numerous Taliban district shadow governors, relays guidance and provides BDA on attacks to TB officials in Pakistan.
- Derogatory Reporting:**
 - 30OCT12: Munib planned to inform unidentified associates regarding casualties from a reported attack on 30 OCT on Manogay base. (GQP01135157601267698)
 - 29OCT12: Munib instructed likely Taliban associates to stay busy utilizing Pikas and PKMs. (GQP01135151308464915, GQP01135148823505821)
 - 29OCT12: Munib instructed Taliban associates to likely execute attacks, to including IEDs, for the next two days against an unidentified base. (GQP0113515323257403)
 - 19OCT12: Munib prepared two IEDs for upcoming attacks. (ACODEX/M1/S00,EC/PP/293,1404Z)
 - 8OCT12: Qari Munib planned to pick up his explosives in Marawara District which were sent by ██████████ (QUICKSBURG). (ACODEX/M1/S00,EC/PP/282,1435Z)
 - 30SEP12: qari Munib planned to meet with a weapons dealer to buy a PKM. (ACODEX/M1/S00,EC/PP/274,2332Z) 2AUG2012: ██████████ (FLATHEAD) coordinated with Qari Munib for an attack that would start the next day intended and was intended to take over three separate districts. (ACODEX/M1/S00,EC/PP/215,0643Z)
- Ethnicity/Nationality:** Pashtun
- TGT List:** JPel: JTL: Pending Approval Recidivist: N
- Intelligence Value:**
 - The c/k of Qari Munib would decrease attacks on CF//ANSF in central Kunar. Qari Munib could provide information on other senior TB members in Narang and Pech districts.
- IQ:**
 - Influence patterns of life IOT facilitate C/K opportunities
 - Disrupt C2 network;
 - Reduce popular support to restrict FOM.
 - Post-Op Mitigation: Yes

SECRET//REL TO USA, FVEY

Battlefield Geometry

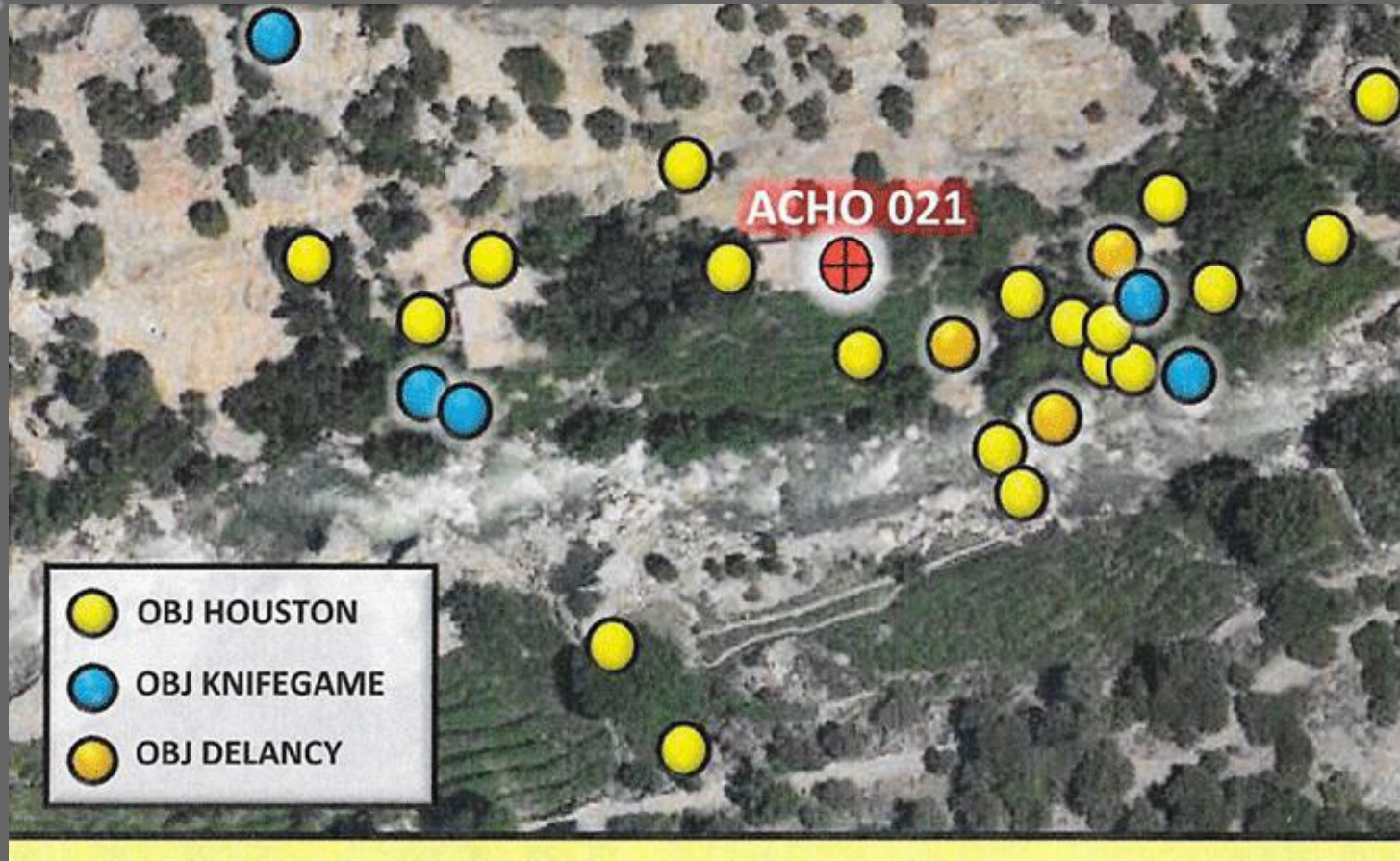
LAST KNOWN LOC: 425XD8636572243

Link Analysis

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graph TD; Flathead[FLATHEAD TB SG MARAWARA] --- QariMunib[QARI MUNIB LETHAL BURWYN TB SUBCDR]; Narang[TB SG NARANG] --- QariMunib; Narang --- HariMatin[HARI MATIN ROMAN SALAFIST CDR]; Plattsburg[PLATTSBURG SR SALAFIST CDR] --- HariMatin; HariMatin --- Dowiran[DOWIRAN VIKING SR SALAFIST CDR]; QariMunib --- Abdullah[ABDULLAH HEARTBREAK RIDGE TB SUBCDR];
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“Objectives” - Baseball Card
<http://theintercept.com> - The Drone Papers

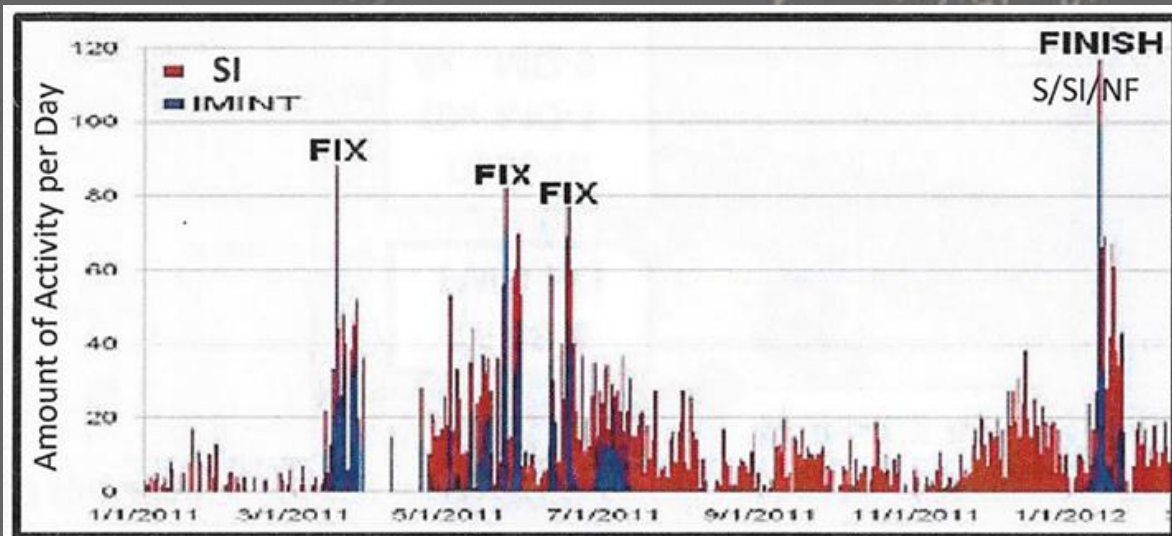
1. Default Setting



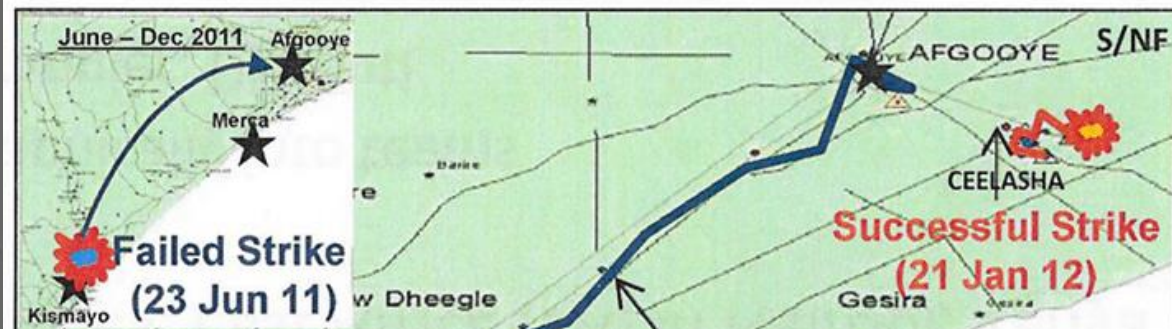
“Targeting” - Cellphone Signals

<http://theintercept.com> - The Drone Papers

1. Default Setting



OBJ PECKHAM MOVEMENT



Find, Fix, Finish

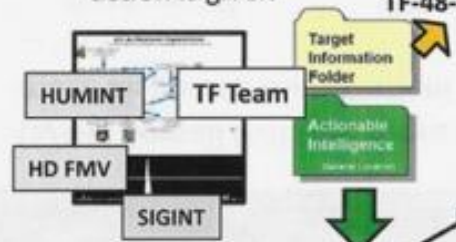
<http://theintercept.com> - The Drone Papers



Authorization to Use Military Force (AUMF) Operations

▶ (S/NF) Step 1 - "Developing a target" to "Authorization of a target"

- TF 48-4 direct action operations are conducted under execution orders for Operation Copper Dune (AP/Yemen) and Operation Jupiter Garret (EA/Somalia)
- These orders specify delegated authorities, authorized targets and criteria for action
- TF intelligence personnel, with support from IC partners, builds the case for action
- This information, in a condensed format known as a "baseball card (BBC)", is packaged with the operations information into a "CONOPS" package and staffed up to higher echelons—ultimately to the President
- If proven that the target presents a threat to U.S. interest or personnel, then a 60-day authorization to action is given

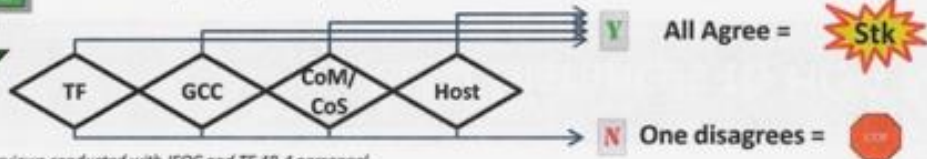


▶ (S/NF) Step 2 - "Authorizing" to "Actioning"

- If POTUS approves the CONOP, operations enter a targeting cycle
- Actionable intelligence provides potential targeting windows
- The targeting window suitability is determined by ROE:
 - must be Low CDE, "near certainty" of HVI presence based on two forms of intelligence, no contradictory intelligence
- TF, GCC, CoM, CoS, HN Gov all must concur or no strike occurs

Current Authorization to Action List	
Jupiter Garret (Somalia)	4
Copper Dune (Yemen)	16

CAO: 30 Jun 2012



THE CHAIN OF COMMAND



Barack Obama
President of the United States



Tom Donilon National Security Adviser	Hillary Clinton Secretary of State	Timothy Geithner Secretary of the Treasury	Leon Panetta Secretary of Defense	Eric Holder Attorney General	Steven Chu Secretary of Energy	Janet Napolitano Secretary of Homeland Security	Jeffrey Zients Director of OMB	Susan Rice Ambassador to the UN	Jacob Lew Chief of Staff	John Brennan Counterterrorism Adviser	James Clapper Director of National Intelligence	Gen. Martin Dempsey Chairman of the Joint Chiefs of Staff
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▲ Principals Committee

STEP ONE: CHOOSING A TARGET



JSOC Task Force



Gen. James Mattis
Centcom Commander



Gen. Martin Dempsey
Chairman of the Joint Chiefs of Staff



Leon Panetta
Secretary of Defense



STEP TWO: TAKING A STRIKE



JSOC Task Force



Gen. James Mattis
Centcom Commander



Gerald Feierstein
Ambassador to Yemen



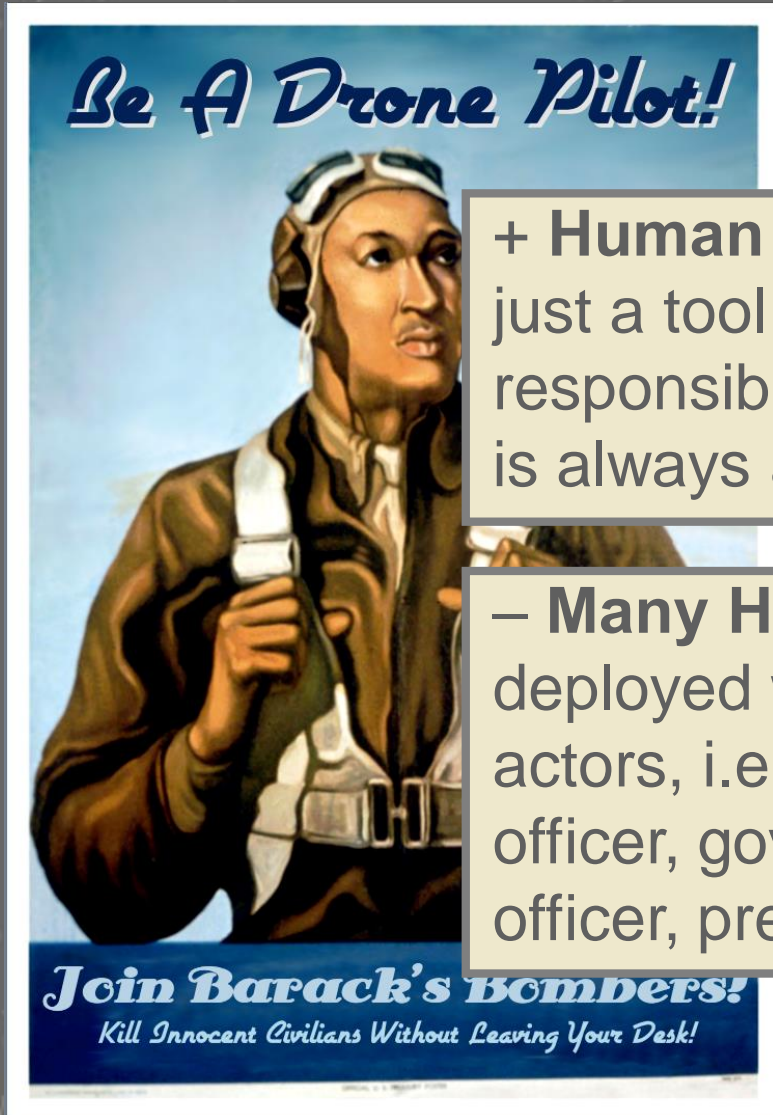
CIA Station Chief in Yemen



Abdu Rabbu Mansour Hadi
President of Yemen

According to a Pentagon study obtained by *The Intercept*, President Obama signed off on 60-day authorizations to kill suspected terrorists, but did not sign off on individual strikes. This graphic shows the officials who would have been involved in approving targets in Yemen in early 2012, according to the chain of command laid out in the study.

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.

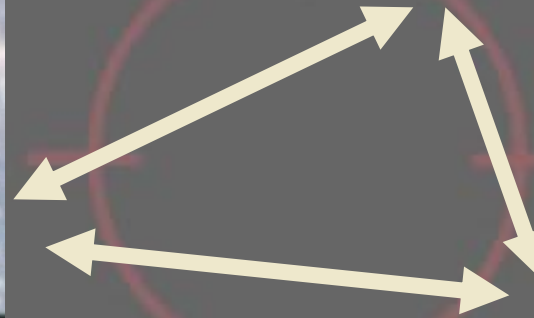
2. Actor Network Theory



Operators



Technologies



Command

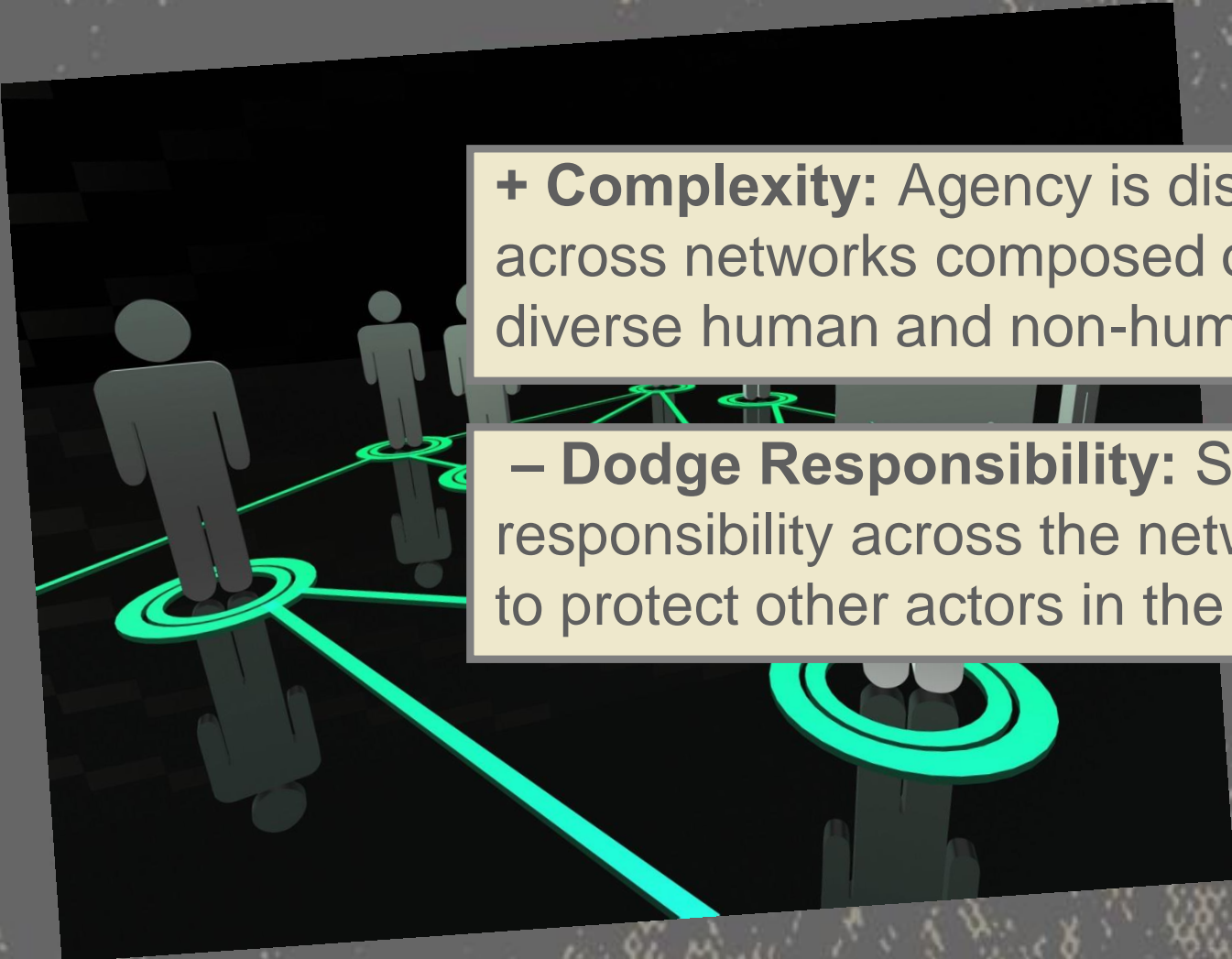
2. Actor Network Theory

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.

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.

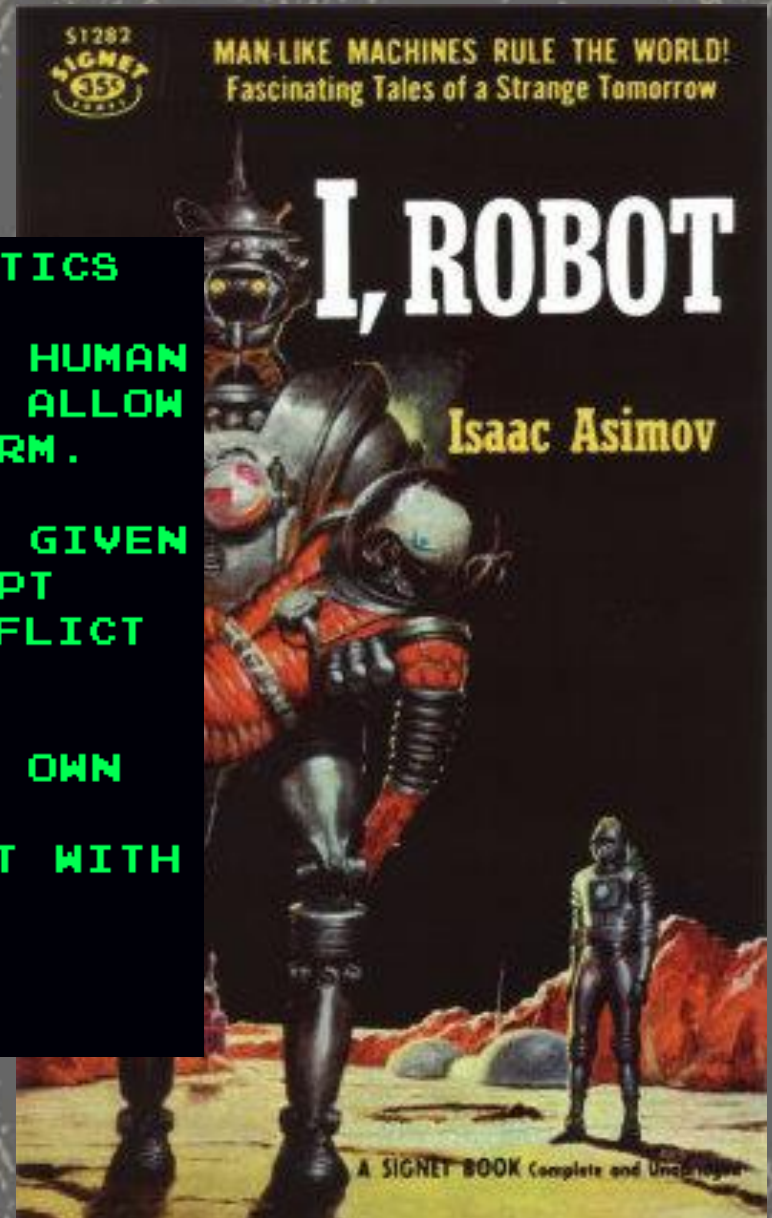
3. Machine Ethics

ASIMOV'S THREE LAWS OF ROBOTICS

1. A ROBOT MAY NOT INJURE A HUMAN BEING OR, THROUGH INACTION, ALLOW A HUMAN BEING TO COME TO HARM.

2. A ROBOT MUST OBEY ORDERS GIVEN TO IT BY HUMAN BEINGS, EXCEPT WHERE SUCH ORDERS WOULD CONFLICT WITH THE FIRST LAW.

3. A ROBOT MUST PROTECT ITS OWN EXISTENCE AS LONG AS SUCH PROTECTION DOES NOT CONFLICT WITH THE FIRST OR SECOND LAW.



3. Machine Ethics

Moral Machines

Teaching Robots Right from Wrong

Rationale for Machine Ethics

“Within the next few years we predict there will be a catastrophic incident brought about by a computer system making a decision independent of human oversight”

- Wallach and Allen 2009

Wendell Wallach • Colin Allen

3. Machine Ethics

Moral Machines

Teaching Robots Right from Wrong



Wendell Wallach • Colin Allen

Michael Anderson
Susan Leigh Anderson, Editors

Machine Ethics

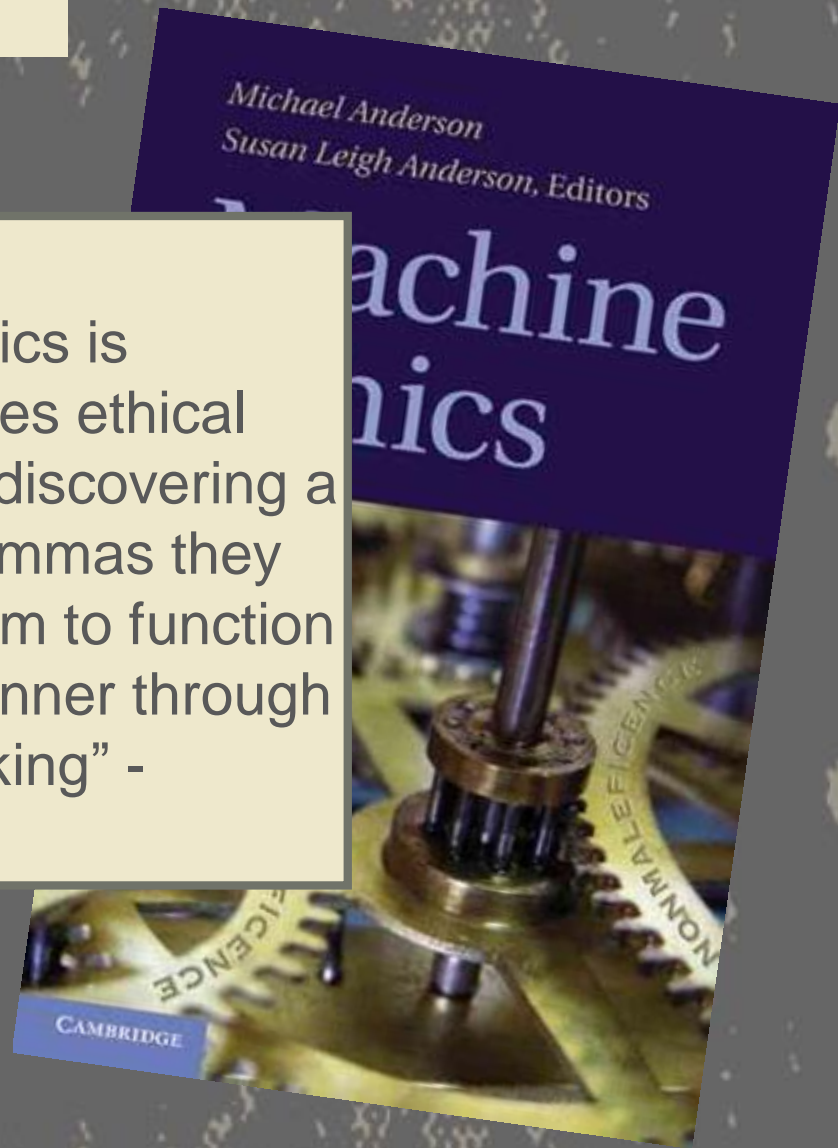


CAMBRIDGE

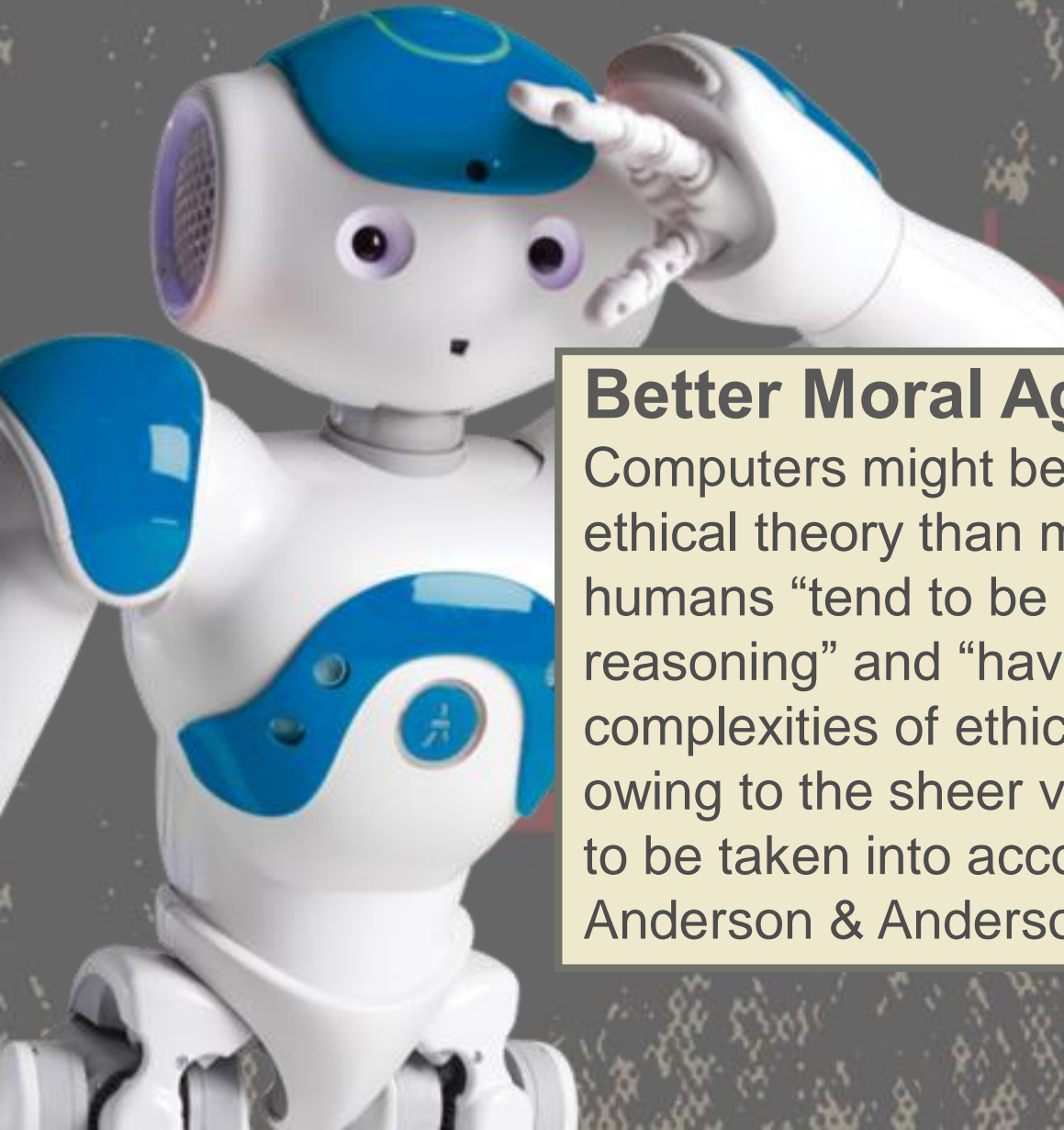
3. Machine Ethics

Machine Ethics

“The new field of machine ethics is concerned with 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” - Anderson & Anderson 2011



3. Machine Ethics



Better Moral Agents

Computers might be better at following an ethical theory than most humans,” because humans “tend to be inconsistent in their reasoning” and “have difficulty juggling the complexities of ethical decision-making” owing to the sheer volume of data that need to be taken into account and processed - Anderson & Anderson, 2007

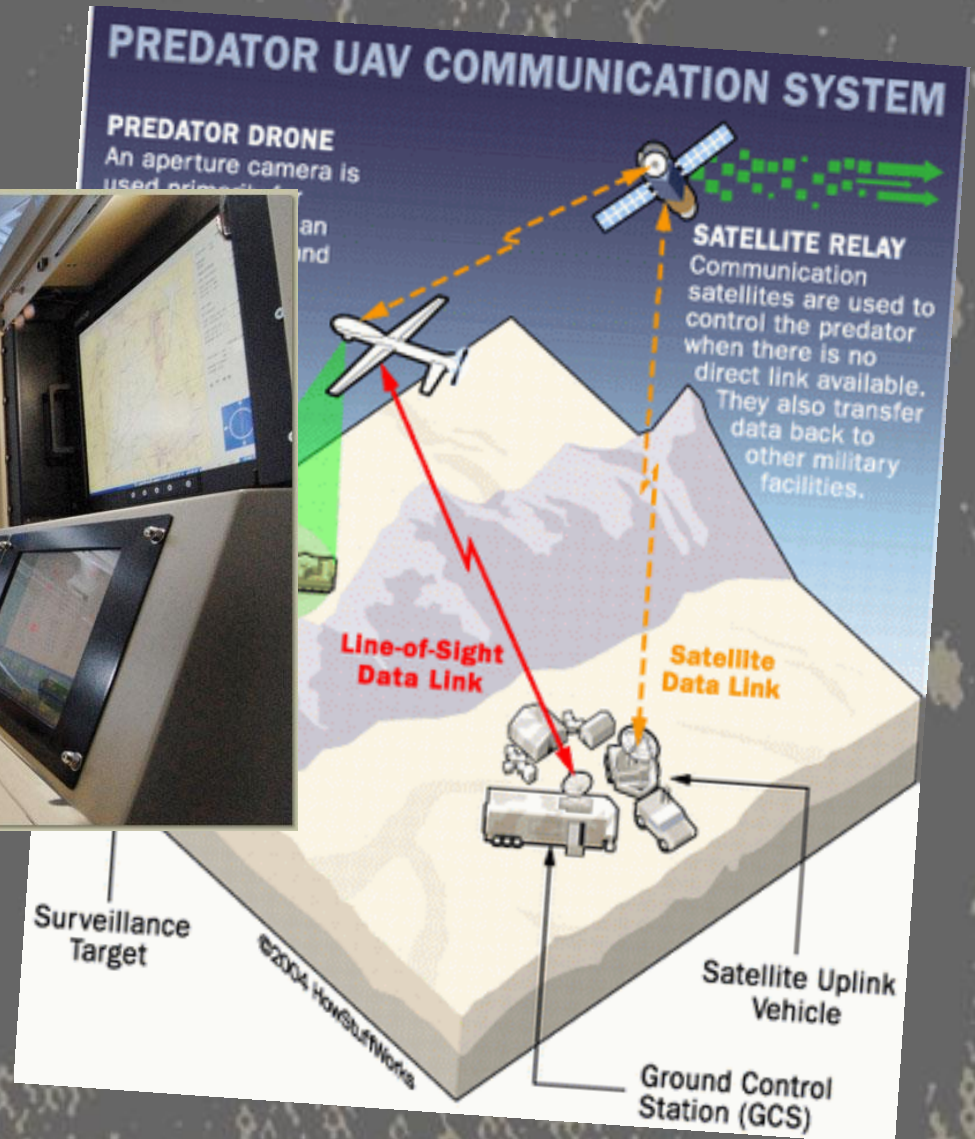
3. Machine Ethics



Wired Magazine (November 2012)

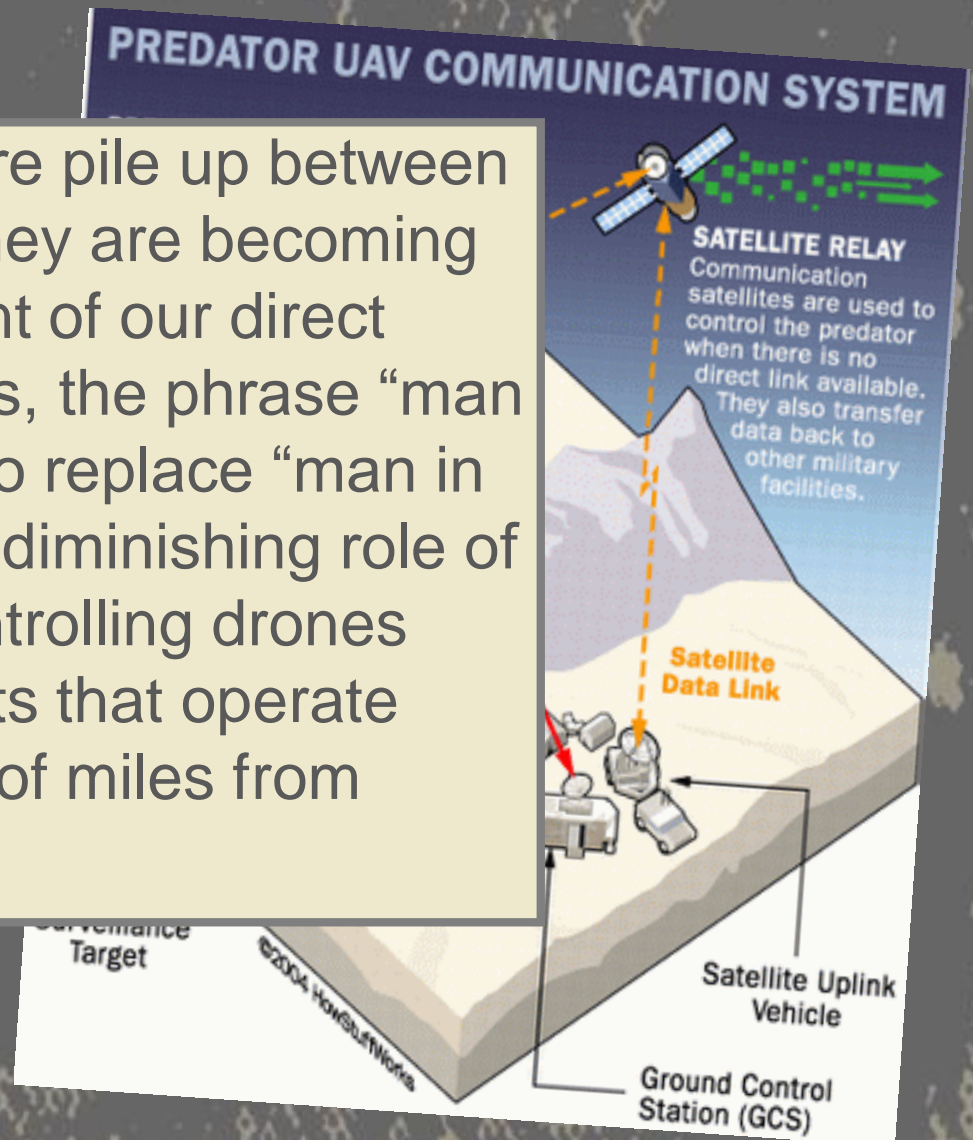
Pentagon: A Human Will Always Decide When
A Robot Kills You

3. Machine Ethics



3. Machine Ethics

“As the layers of software pile up between us and our machines, they are becoming increasingly independent of our direct control. In military circles, the phrase “man on the loop” has come to replace “man in the loop,” indicating the diminishing role of human overseers in controlling drones and ground-based robots that operate hundreds or thousands of miles from base” - Allen 2013



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.



RADAR

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

POSITION ESTIMATOR

A sensor mounted on the left rear wheel measures small movements made by the car and helps to accurately locate its position on the map.

“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 & Anderson 2004

3. Machine Ethics

+ **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.

Defense

NEWS

ATS

POLITICS

MANAGEMENT

TECH



October 8, 2013

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

Questions

