

# The Art of Future War

## Armed Conflict in the Information Age

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# Overview

- How does technology change the way we fight and think about war?
  - Networks and States
  - Robotics and Warriors
- What are the social, political, economic and human effects of these changes?
- How will society adapt organizationally and functionally to these changes?

# Caveats

- New technologies do not determine human fates; instead, they alter the spectrum of potentialities within which people may act
- Technology changes the context of war
- Predictions are hard ... especially about the future ... but these are observable trends

# What is war?

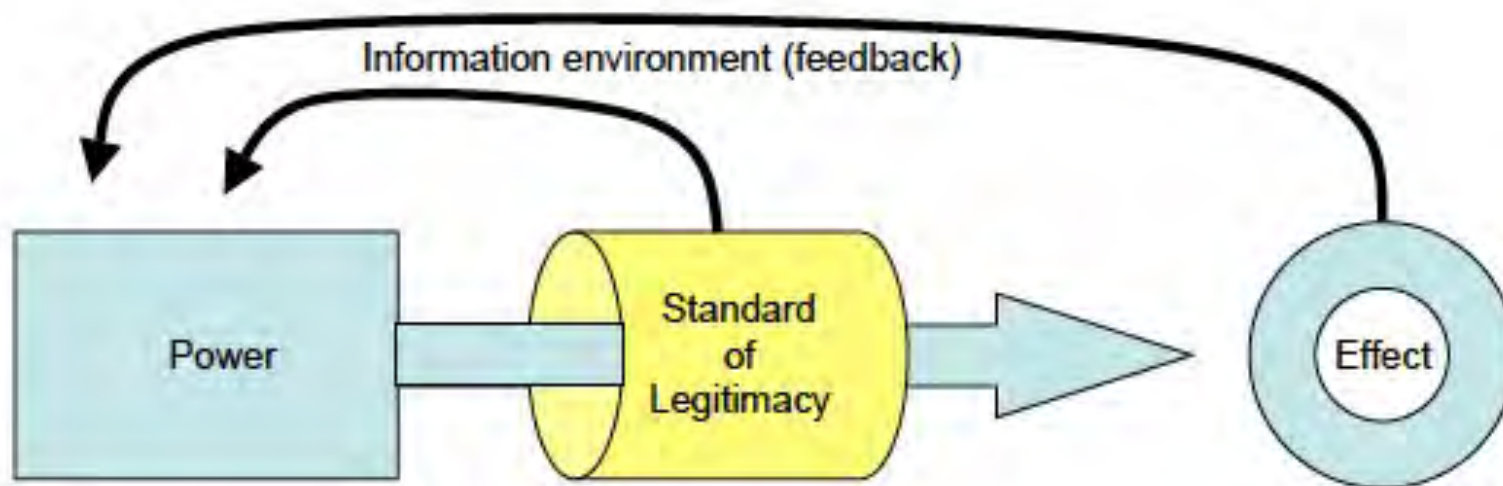
- Carl von Clausewitz: "War is thus an act of force to compel our enemy to do our will."
- War as the use of armed force to implement policy preferences in international affairs

# Part 1: The State

- War in this context is an instrument of national power
- Instruments of power: D, I, M, E, and LE
  - Command change (coerce)
  - Set agendas (persuade)
  - Establish preferences (seduce)
- Trend: hard > soft > smart power
- Power is constrained and diffused by ICT

# Power constrained

Information environment constrains power



# Power diffusion

- Technology enables new actors to project power – including existential armed force – previously only available to nation states
  - Costs (lower acquisition/higher consequence)
  - Reach (extend over space and time)
- From “Nation” States to Virtual “States”
  - Peer > near peer > lesser > non-state

# "Nation" States

- Westphalian 1648 "system"
  - Premised on "sovereignty and non-interference"
  - Maintained by geographic "borders"
  - Among "imagined communities" (~maps)
- Used geographic bounding of secular\* states to link political entities/power with particular cultural groups
- "States" have no friends, only interests



# Virtual "States"

- Complex adaptive systems with myriad overlapping, conflicting and interdependent interests – no steady state, defined by fluid borders and changing constituents
- Boundaries more accurately defined in terms of informational reach than of geographic space
  - Nation state defined by geo-bound culture/interests
  - Virtual state defined by info-bound culture/interests

# New IR Power Players

- Power migrates from Institutional Hierarchies to Networked Participants
  - “Unity of command” to “unity of effort”
  - Self-organizing around emergent interest(s)
- Unity of effort is enabled by organizational structures – “platforms” – that lower transaction costs for meeting demands/needs with networked resources

# Platforms as Metaphor

- Organized structures to meet cross-domain demands/needs
  - Connecting platforms (e.g. supply chain, BEIC)
  - Enabling platforms (e.g. financial networks, BE)
  - Shaping platforms (e.g. NGO, MSM, social media)
- al-Q as connecting, enabling, shaping platform
- Platforms have functional boundaries, are subject to network effects, and conform to power laws

# Empowered Non-state Actors

- Good Guys
  - NGOs, multinationals, international finance, "entrepreneur hacker"
- Bad Guys
  - Terrorists, organized crime, gangs, traffickers, rogue corporations, "hackers"
- New Guys
  - Flash mobs, self organizing systems
- Old Guys (especially cyber \*\*\*)
  - Hybrids, proxies, privateers

# ~~Nation~~ Entangled States

- Interdependencies
  - Global financial markets
  - Supply chains
  - Communications infrastructure
  - Common platforms
- Total war becomes impossible but unrestricted war becomes more common

# New Principles of War

“The new principles of war are no longer ‘using armed force to compel the enemy to submit to one's will,’ but rather are ‘using all means, including armed force or non-armed force, military and non-military, and lethal and non-lethal means to compel the enemy to accept one's interests.”

## – UNRESTRICTED WARFARE

Col. Qiao Liang and Col. Wang Xiangsui

(Beijing: PLA Literature and Arts Publishing House, February 1999)

# Evolving Int'l Rel Mechanisms

- Linear process: peace-crisis-war-peace
- To managing complex process of 3Cs:
  - Cooperation
  - Competition
  - Conflict
- From dominating domains to shaping environments (using all instruments of power) in order to manage novel threats

# Part 2: The Warrior

- Thucydides defined war as “that human thing”
- The myth of heroic war and the warrior ethos underlies modern rule-based warfare and humanitarian law
- What happens when we take the human out?



# Motivating the trend

- Few in advanced secular democratic states are willing to die for their beliefs or their countries
- Leaders are political risk-averse and especially wary of incurring casualties (election cycles)
- Robots (and cyber) offer a cheap and effective way to stay in the war business

# Evolution of Warfare

|         | Paradigm                   | COG       | Leverage            | Exemplar   |
|---------|----------------------------|-----------|---------------------|------------|
| 1G WF   | Agrarian<br>(classical)    | Manpower  | Massed<br>formation | Napoleonic |
| 2G WF   | Industrial<br>(pre-modern) | Assets    | Massed<br>firepower | US Army    |
| 3G WF   | Nonlinear<br>(modern)      | Control   | Maneuver            | USMC       |
| 4G WF   | Chaotic<br>(post-modern)   | Moral(e)  | Information         | SOF        |
| 5G WF ? | Virtual<br>(future)        | Corporeal | Elections*          | USAF*      |

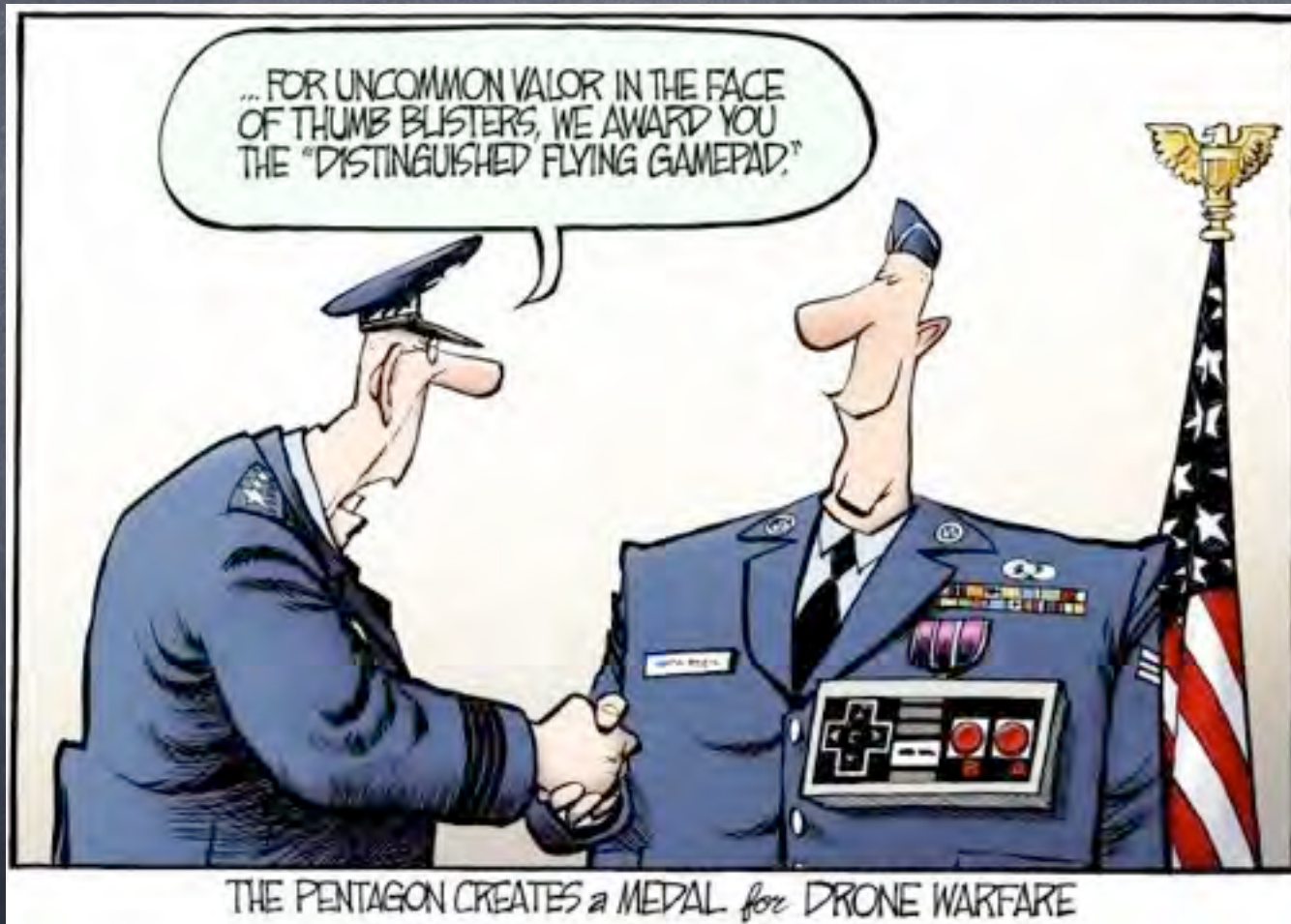
# Drone-war

- Number of drones in US military
  - 2001 - ~a few dozen
  - 2012 - ~10,000
- Last year, drones flew more combat hours than manned aircraft
- Today the USAF trains more drone pilots than fighter or bomber pilots combined
- USAF officers/US Army enlisted



Thursday, April 18, 13

# Distinguished Warfare Medal



THE PENTAGON CREATES a MEDAL for DRONE WARFARE

**TOP GUN**

**FIGHTER  
PILOT**



**TOP GUN**

**DRONE PILOT**



2012



# Robo-war

- Number of robots in US Military
  - 2001 - ~0
  - 2012 - ~15,000
- 1 in 50 combat soldiers are robots today
- Best army operators are 18-20 year old gamers (cooks) (cf. 22-25; 27) (M>F)
- Game controllers have replaced flight controls
- Anthro: names, ranks/promotions

# Scooby Doo

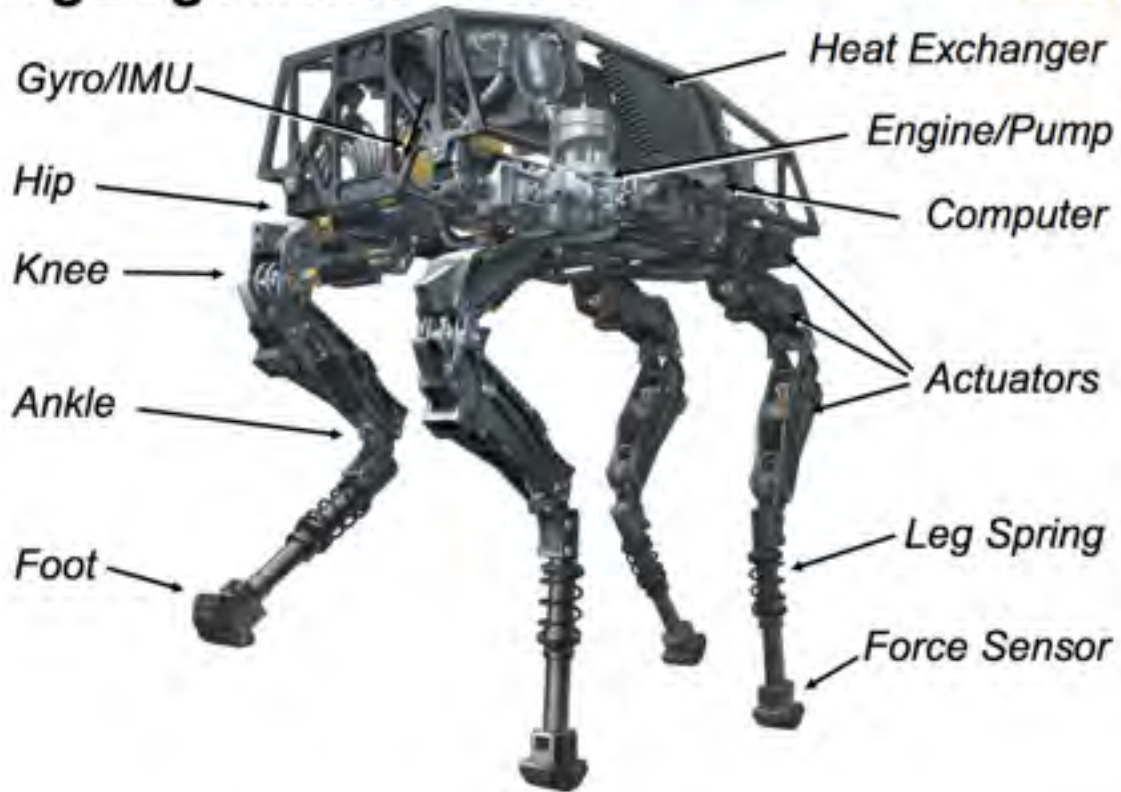




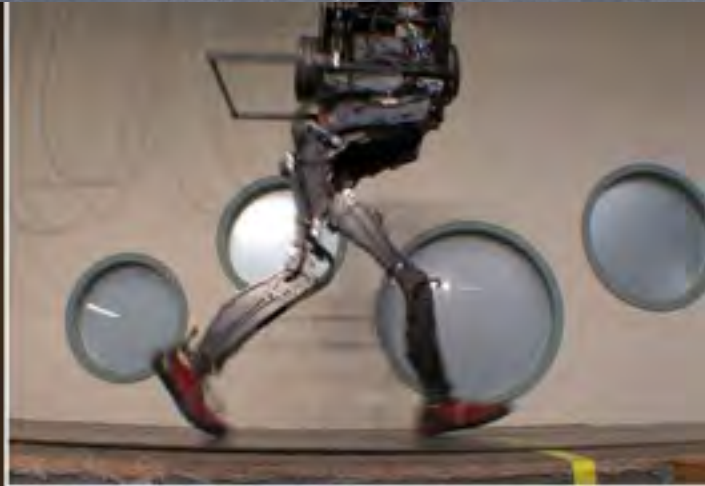


# BigDog Architecture

BostonDynamics







# Autonomous systems

- Eliminate “man in the loop” accountability
- “Command responsibility” will be replaced by “product liability”
- What happens when robots kill the wrong target:
  - “It depends on the situation. But if it happens too frequently, then it is just a product recall issue.”

# Machine over man

- More deliberate: less need for self-protection
- Better target discrimination: superior sensors
- Emotionless: do not act on fear, anger or desire for revenge
- Better decision making: process information faster/better

# But ...

- Without having to put soldiers in “harm’s way” robotic systems lower the threshold for the use of force
- Risks are shifted from allied soldiers to enemy civilians (errors are collateral damage)

# What does war mean?

- “War does not begin when some people kill others; instead it starts at the point where they themselves risk being killed in return.” Martin van Creveld
- War is traditionally defined by willingness to sacrifice blood or treasure, what does it mean without either?



# ... to the cubicle warrior?

- Drone pilots wear combat flight suits but sit in an a/c cubicle in a trailer in the Nevada desert
- They use a game controller to kill people 7,000 miles away at the push of a button
- They take breaks to order pizza and play video games, and at the end of the day they go home to their wives and children
- But, these cubicle warrior still suffer same or higher rates of PTSD than deployed units

# ... on the Home Front

- No Sacrifice (no war tax, no privation)
- Low threshold as instrument of policy
- Micromanaging
  - Politicians over combatants
- Monday morning quarterbacking
  - Diluting command initiative
- “War porn” as entertainment at home
  - Detachment
  - Objectifying
  - Conditioning

# ...to the Enemy?

- US Commander: "They fear our technology"
- Arab journalist: "The Americans are cowards who send machines to fight us ... they are afraid to fight us like men. All we have to do is kill a few of their soldiers to defeat them."
- Losing the narrative?

# Man/Machine Integration

- Restorative (restore lost function or replace limb/organ)
- Reconfiguring (to adapt humans to new environments)
- Enhancing natural abilities (bio-engineering and pharmacological enhancement)

# Future concerns

- Natural humans will be displaced as most intelligent species on the planet (enhanced humans, evolution of silicon-based “life forms”)
- The auto-transformation of the species (evolve beyond natural properties)
- Fusing of man and machine – the cyborg

# Conclusion

- Soldiering is becoming information processing
- War is becoming a civil engineering project
- Without warriors at risk will war still be a legitimate tool of international relations or simply fumigation/extermination on a terrestrial scale? Is that good or bad?