ADVANCED COURSE IN ENGINEERING

Competence | Commitment | Courage | Compassion

Tactics Tuesdays

Capt Daniel Fitzgerald

Summer 2021

ACE

Intent

- Forge a cadre of future cyber warriors and leaders of consequence
- Implement a warfighting component into ACE
- Get future leaders thinking about tactics & warfighting for capstone
- Test Boyd's ideas in the cyber domain

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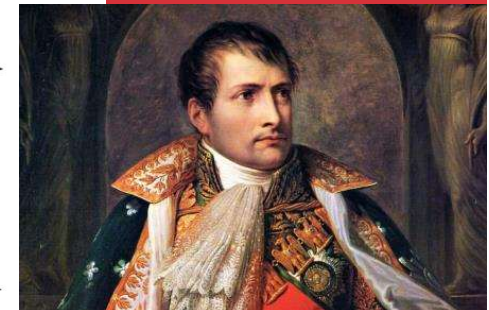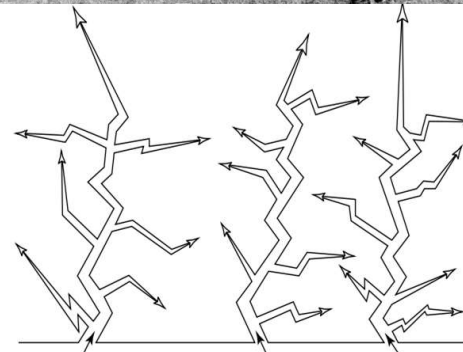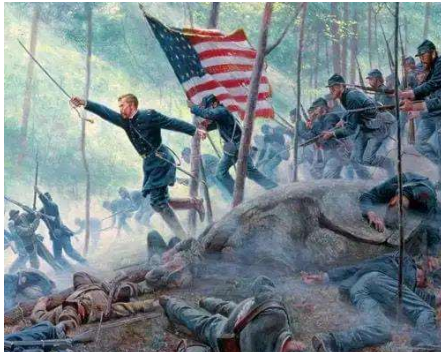
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High-Level Overview

- OODA Loop
- Spheres of War
- 19th Century Strategic Thought
- Blitzkrieg, Schwerpunkt, and Maneuver Warfare
- Changing Character of War
- Cyber and Information Warfare

THE ART OF WAR

SUN TZU

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OODA Loop Overview

- Who is John Boyd?
- Analysis and Synthesis
- Godel, Heisenberg, and the 2nd Law of Thermodynamics
- OODA Loop in depth
- Variety and rapidity, harmony and initiative
- Examples
  - F-86 vs MiG-15
  - YF-16 vs YF-17
  - AQI vs McCrystal
- Discussion

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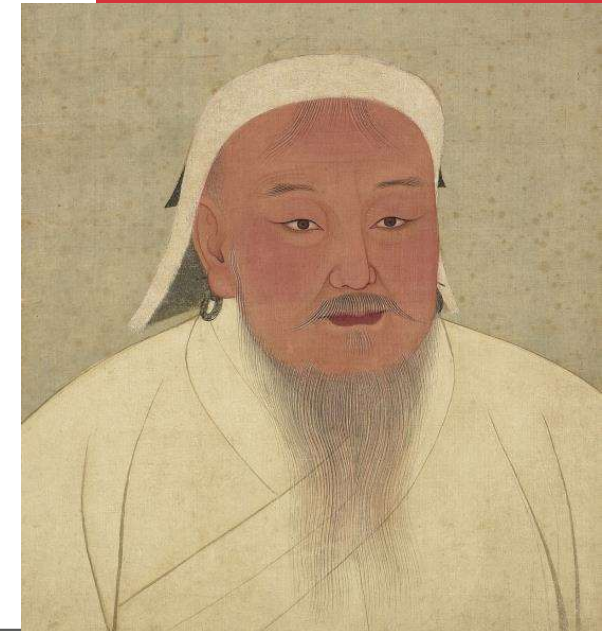
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Spheres of War Overview

- JFC Fuller's 3 spheres of war

- Sun Tzu and The Art of War

  - Harmony

  - "Behave like water"

  - Plans, alliances, army, cities

  - Know your enemy, know yourself

  - Cheng and Chi

  - Subdue enemy without fighting (battle)

- Genghis Khan and the Monghol Empire

  - Dispersion and concentration game

  - Propaganda and terror

  - Everywhere yet nowhere

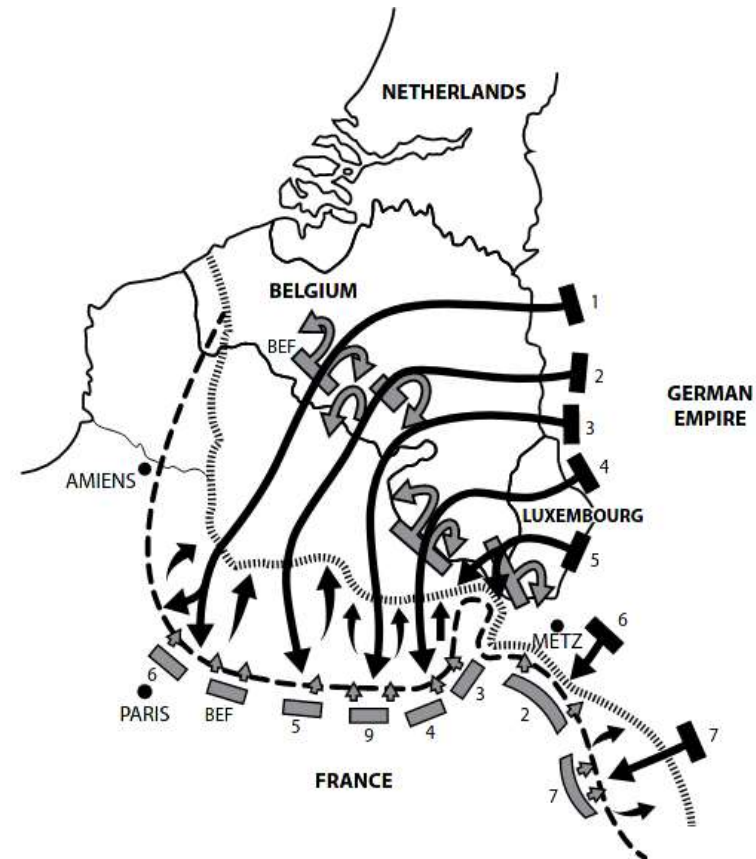THE ADVANCED COURSE IN ENGINEERING

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19th Century Strategic Thought Overview

- Napoleon
  - General Bonaparte vs Emperor Napoleon
  - Strategic Themes
  - Result
- Clausewitz
  - Character/Nature of War
  - Boyd's Critique
  - Result
- Jomini
  - Key Ideas
  - Result

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Blitzkrieg, Schwerpunkt, and Maneuver Warfare Overview

- World War 1
  - Action, Reaction, Result
  - Infiltration Tactics
- Between the World Wars
- Blitzkrieg
  - Idea and Impression
  - Key Point and Question
- Schwerpunkt
  - Message and Implication
- Maneuver Warfare
  - Strategy, Payoff, and Aim

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Changing Character of War Overview

- Guerrilla Warfare
- Knowing Your Enemy
- Cyber Attack on Estonia
- Russia's Little Green Men
- China's Fishing Boats & Unsinkable Aircraft Carriers
- The Path Forward

THE SHADOW WAR

Inside Russia's and China's Secret Operations to Defeat America

JIM SCIUTTO

CNN ANCHOR AND CHIEF NATIONAL SECURITY CORRESPONDENT

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Cyber and Information Warfare Overview

- History of Cyber Warfare
  - Morris Worm
  - Eligible Receiver
  - Solar Sunrise / Moonlight Maze
  - Operation Buckshot Yankee
  - Stuxnet
- Information Warfare
  - Bosnia
  - Estonia
  - Ukraine
  - Active Measures

"Eye-opening . . . a page-turner . . . consistently surprising." —*The New York Times*

DARK TERRITORY

THE SECRET HISTORY OF CYBER WAR

FRED KAPLAN

WITH A NEW AFTERWORD BY THE AUTHOR

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Looking Towards Next Year

- Lessons Learned
  - Interns are interested and see value
  - They start to pick up on ideas and incorporate into plans
  - Early preparation pays off
  - Set the environment and tone - Avoid lecturing
  - Use GAs to seed discussion throughout
  - Have information reviewed by multiple people

- Plan for Improvement
  - Develop continuity and continuation plan
  - Gather feedback and improve based on feedback
  - Determine focus - General warfighting or Patterns of Conflict
  - What would you like to see?

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