

Nonacademic Physics



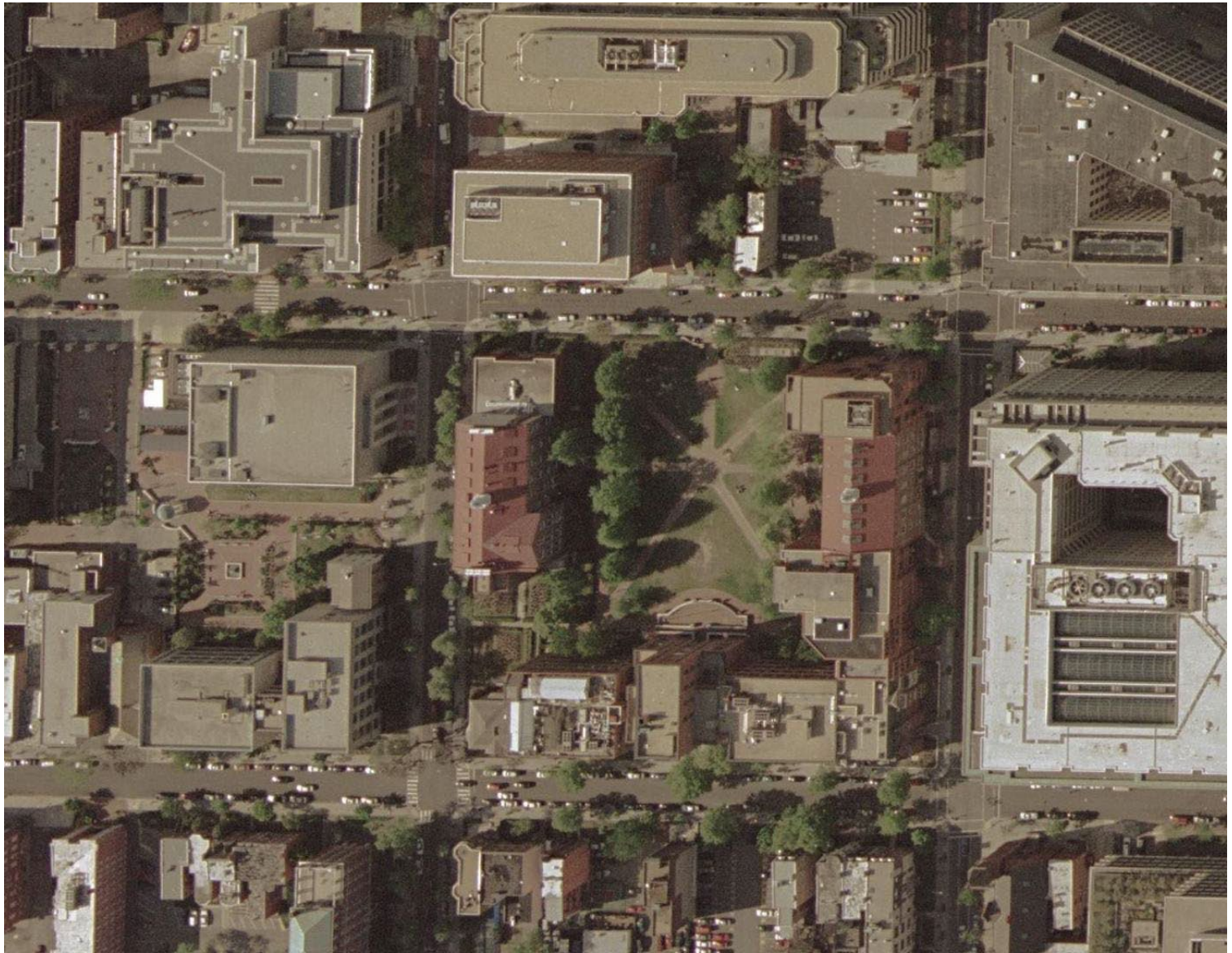
Rodney Meyer
Director of Emergent Technologies

Outline

- Overview of Field
- Use of Physics
- Skills and Knowledge
- Career Path
- Recommendations
- Discussions

Outline

- **Overview of Field**
- Use of Physics
- Skills and Knowledge
- Career Path
- Recommendations
- Discussions



Quick Bird from USGS

“In the country of the blind the
one-eyed man is king.”

-- Desiderius Erasmus

Remote Sensing

- Trident II D5 backfit (navy)
- LWIR hyperspectral landmine detection (DARPA)
- GPR landmine detection (army)
- LDV landmine detection (army)
- SPAD (army)
- Mountaintop (NG)
- WAAMD minefield detection (army)
- Human ID at a Distance (DARPA)
- Eyeball (DARPA)
- FCS (army)
- AGI Toolkit (NGA)

Outline

- Overview of Field
- **Use of Physics**
- Skills and Knowledge
- Career Path
- Recommendations
- Discussions

“ $F = ma$?

It's always $f = ma$.

No! $ma = f$!

That's Newton's other law! “

-- Arthur P. Mattuck

Trident II D5 Backfit

Requirements Document for Unit Conversion (TDESS)

...

$$1 \text{ gal} = 1 \text{ cm/s}^2$$

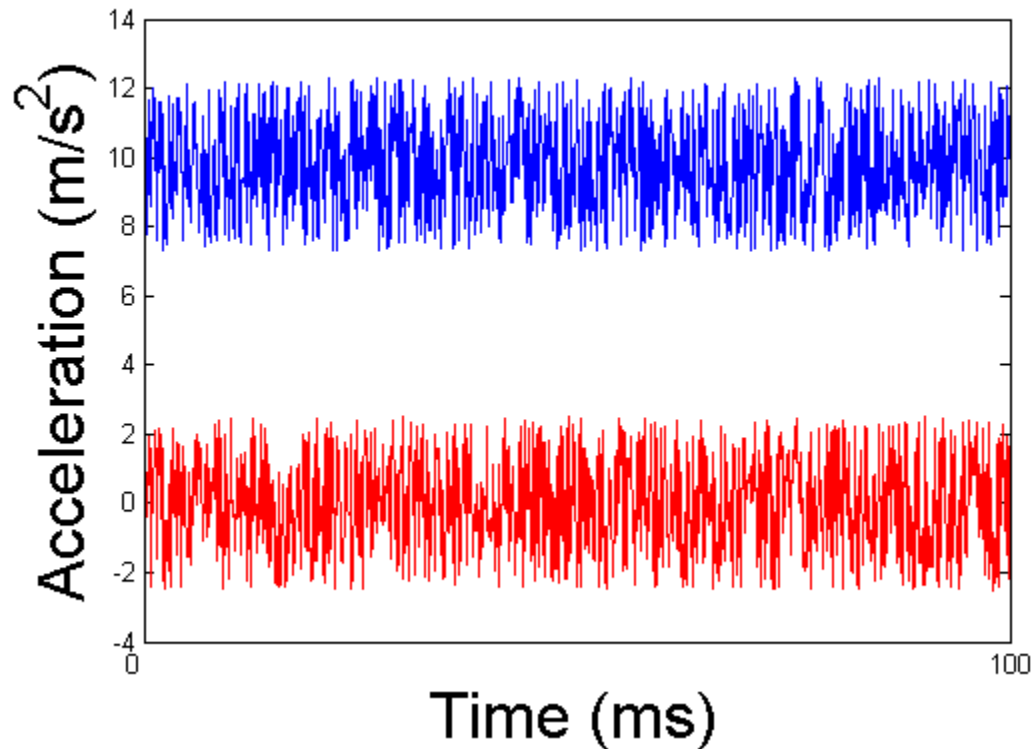
$$1 \text{ mgal} = .01 \text{ cm/s}^2$$

...

Performance Tests for Multi-Role Airplane

INU-GPS Data Stream

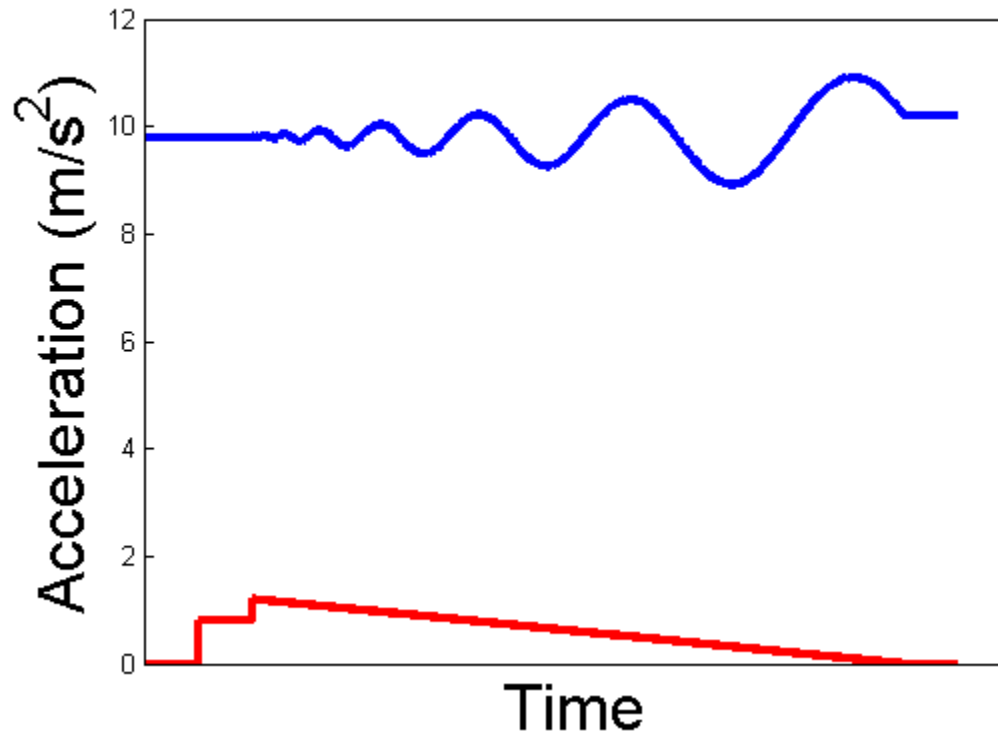
Bombardier



Performance Tests for Multi-Role Airplane

INU-GPS Data Stream

Bombardier



Wide Area Aerial Minefield Detection (WAAMD)

ROC requirement 95% PD @ FAR .1 km⁻²

Proposed Solution :

8 mines in each of 4 categories

Actual Solution :

30 mines in each of 48 categories

Physics

- Trident II D5 backfit (navy)
- LWIR hyperspectral landmine detection (DARPA)
- GPR landmine detection (army)
- LDV landmine detection (army)
- SPAD (army)
- Mountaintop (NG)
- WAAMD minefield detection (army)
- Human ID at a Distance (DARPA)
- Eyeball (DARPA)
- FCS (army)
- AGI Toolkit (NGA)

Outline

- Overview of Field
- Use of Physics
- **Skills and Knowledge**
- Career Path
- Recommendations
- Discussions

“...but how do you get someone to think, to really think?”

-- Mark Havey

Thinking Outside the Box

Curiosity

Integrity

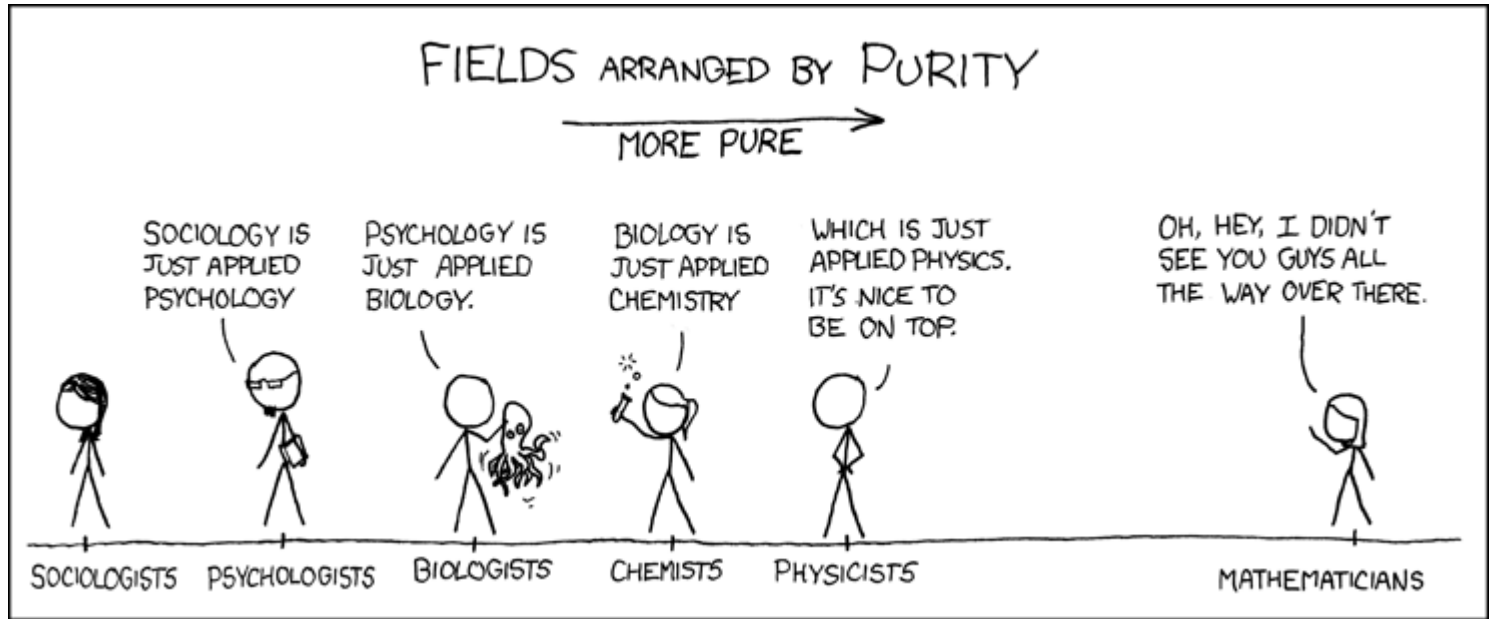
Listening

Self-Effacing

Willing to Learn

Understanding a Customer's Need

XKCD



Business
Majors

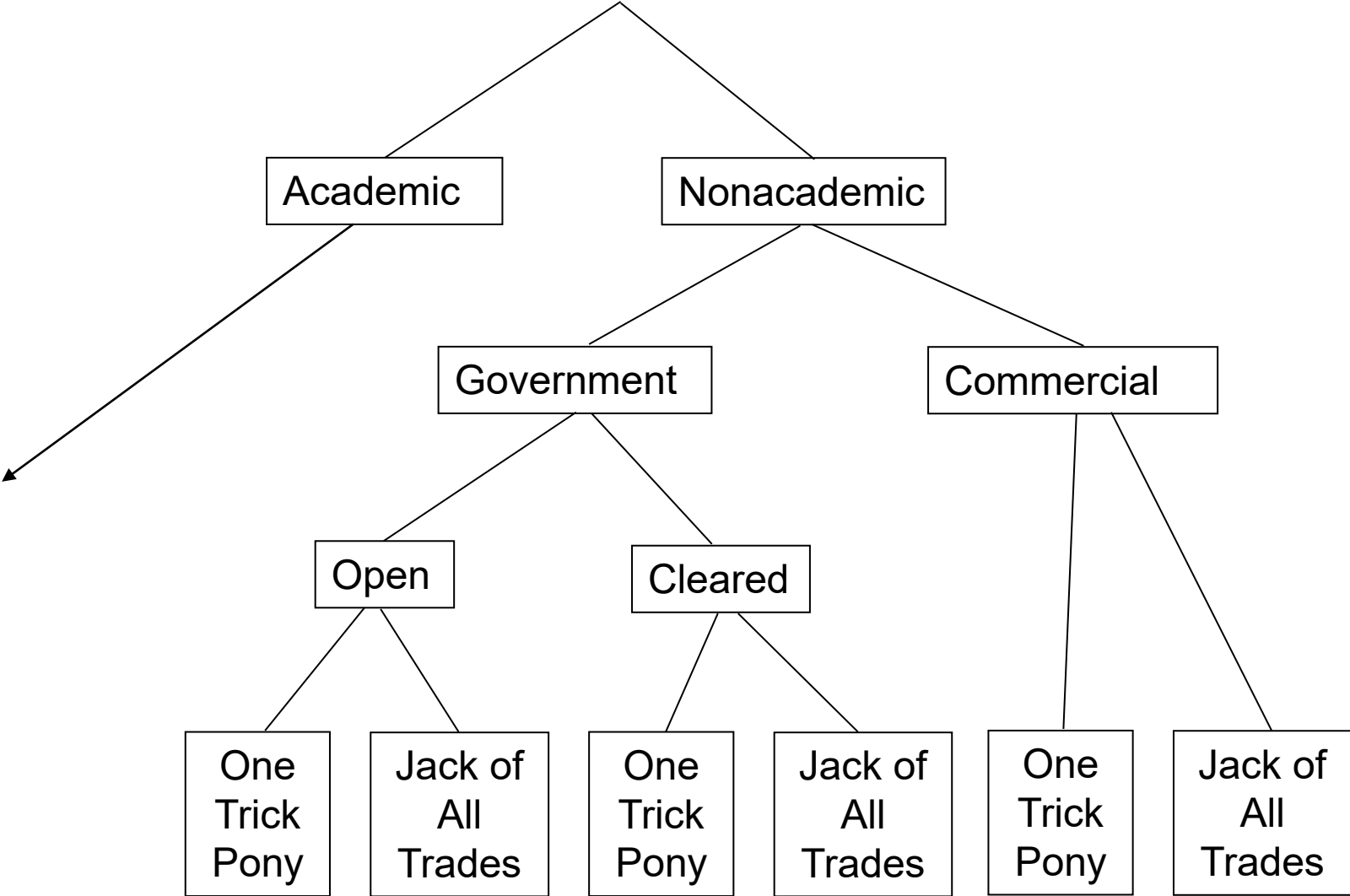
Outline

- Overview of Field
- Use of Physics
- Skills and Knowledge
- **Career Path**
- Recommendations
- Discussions

“Two roads diverged in a wood, and
I took the one less traveled by,
and that has made all the difference.”

-- Robert Frost

Career Paths



Career Steps

Getting your foot in the door

Your first job

For $i = 2$ to N

 Your job _{i}

Next

Outline

- Overview of Field
- Use of Physics
- Skills and Knowledge
- Career Path
- **Recommendations**
- Discussions

Faculty

Thinking

Values

Play in a Bigger Sandbox

Student

Understand Your Ignorance

Learn to Learn

Network

Fulfill a Need (BAA)

Outline

- Overview of Field
- Use of Physics
- Skills and Knowledge
- Career Path
- Recommendations
- Discussions**

Which image do you think best illustrates nonacademic physics?

