

Attendance, Warmup



Attendance link at
ignite.byu.edu/cbe400/lectures

- Maven of Meat
- Sultan of Smoke
- Seargent of Sear
- Chieftain of Char
- ... (expand this list)

- Maven of Meat
- Sultan of Smoke
- Seargent of Sear
- Chieftain of Char
- Sensei of Sauce
- El Jefe of Ham
- Chaplain of Chocolate
- Patriarch of Pizza
- Duchesse of Dessert
- Saint of Salad
- Pastor of Pescado
- Premier of Pastry

ChatGPT: ("expand this list")

- Baron of Bacon
- Bishop of Burgers
- Captain of Cupcakes
- Count of Cake
- Doyen of Donuts
- Emperor of Entrées
- Guru of Gravy
- Knight of Nachos
- Maestro of Marinara
- Monarch of Macaroni
- Oracle of Omelets
- Overlord of Oysters
- Queen of Quiche
- Ruler of Ribs
- Sovereign of Sausage
- Viceroy of Vegetables
- Warden of Wings
- Wizard of Waffles
- Vizier of Vittles

- Baroness of Brioche
- Conqueror of Crumpets
- Purveyor of Pasta
- Sifu of Seafood
- Luminary of Legumes
- Visionary of Veal
- Curator of Cuisine
- Imam of Umami
- Rabbi of Recipe

Show and Tell

Issak

Zach

Josh A

Next week: Jonathan, Josh, McKay



Critical Thinking

Logical fallacies

- An error in reasoning that makes an argument invalid or weak

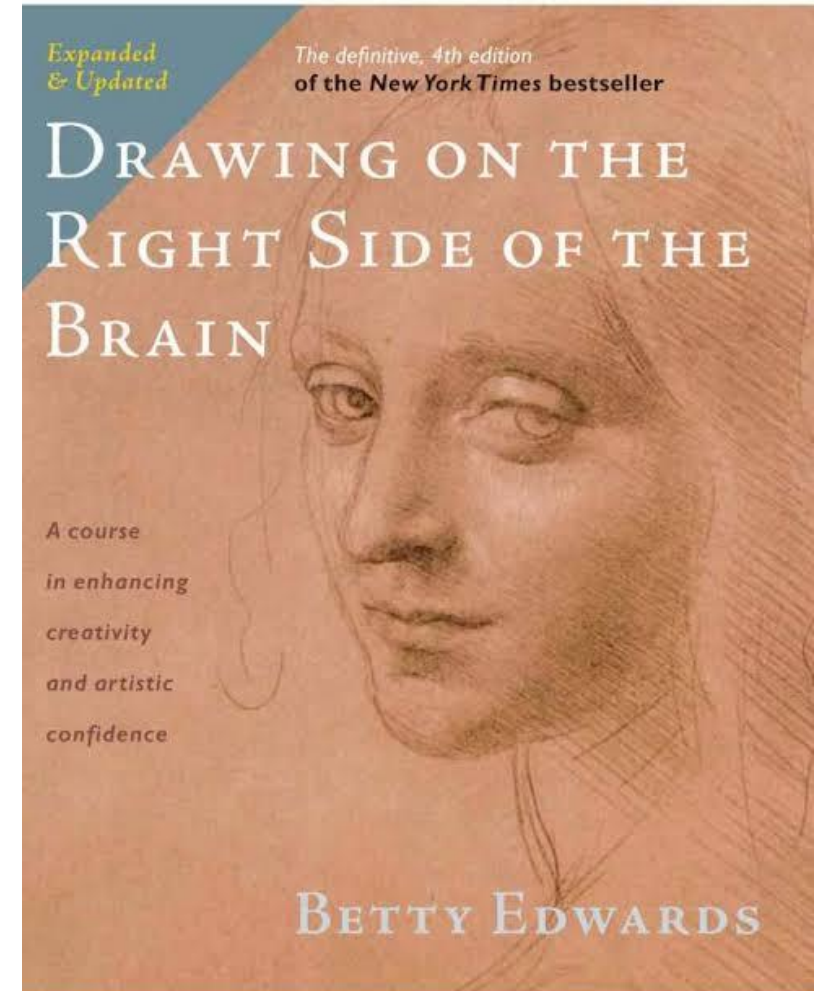


Explorer

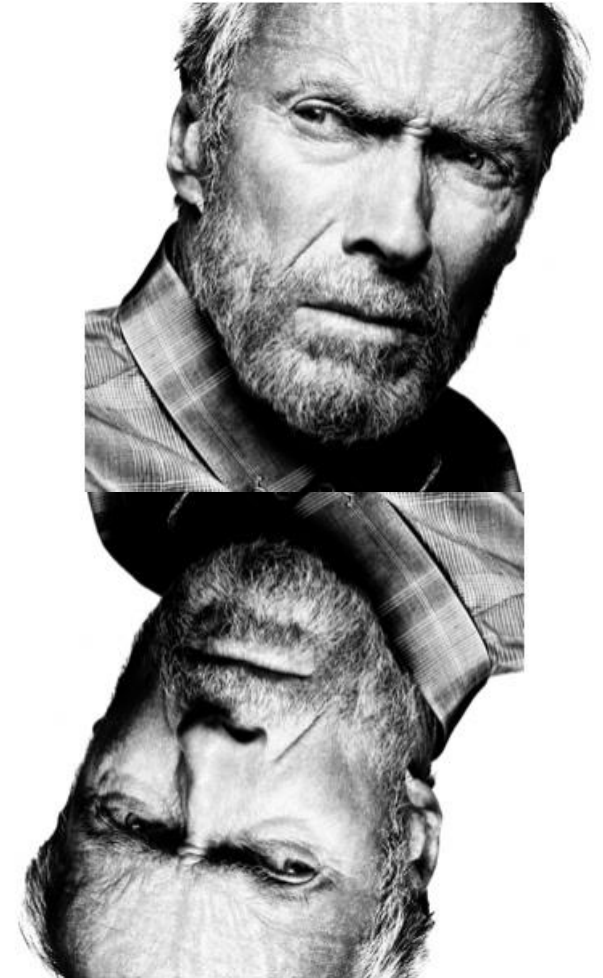
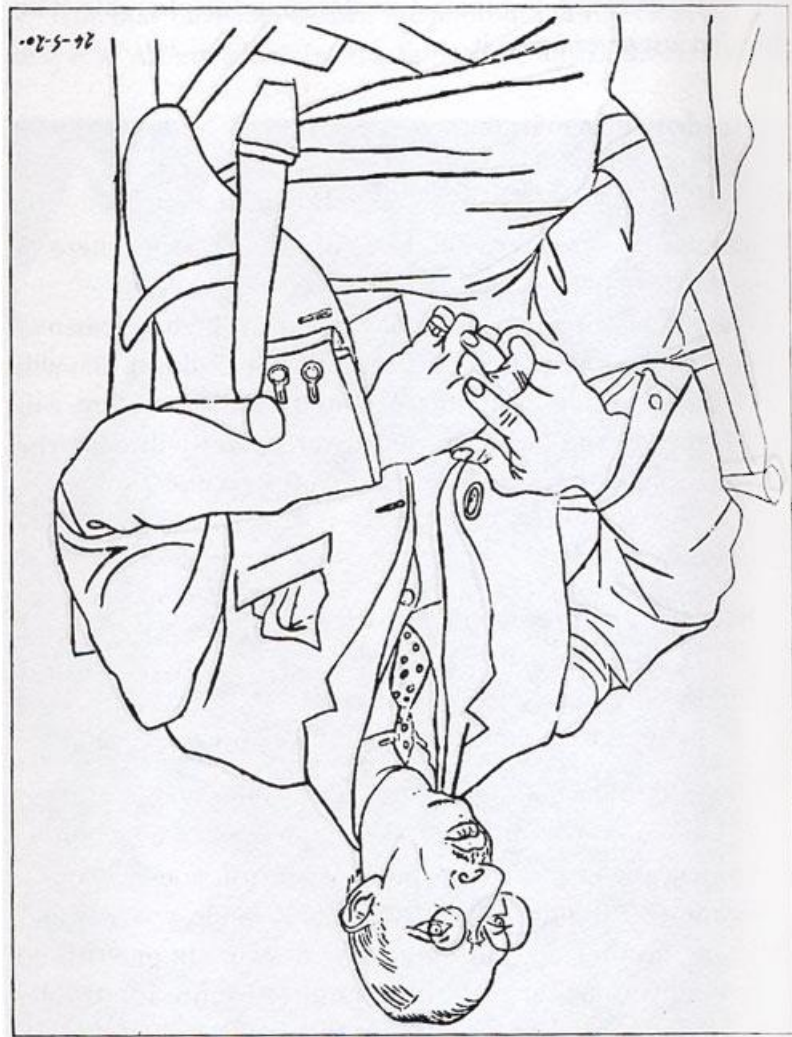
- What is the role of the explorer?
- To generate ideas, we need the raw materials:
 - Facts
 - Concepts
 - Experiences
 - Knowledge
 - Feelings



See



See



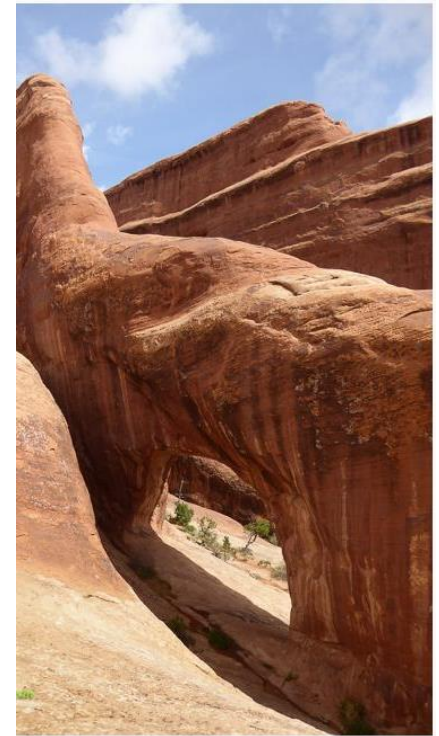
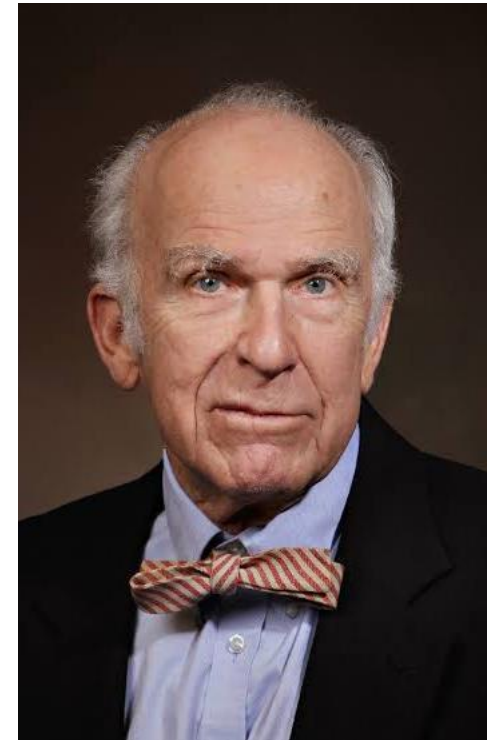
See and Wonder

I roamed the countryside searching for the answers to things I did not understand. Why shells existed on the tops of mountains along with the imprints of coral and plant and seaweed usually found in the sea. Why the thunder lasts a longer time than that which causes it and why immediately on its creation the lightening becomes visible to the eye while thunder requires time to travel. How the various circles of water form around the spot which has been struck by a stone and why a bird sustains itself in the air. These questions and other strange phenomena engaged my thought throughout my life.

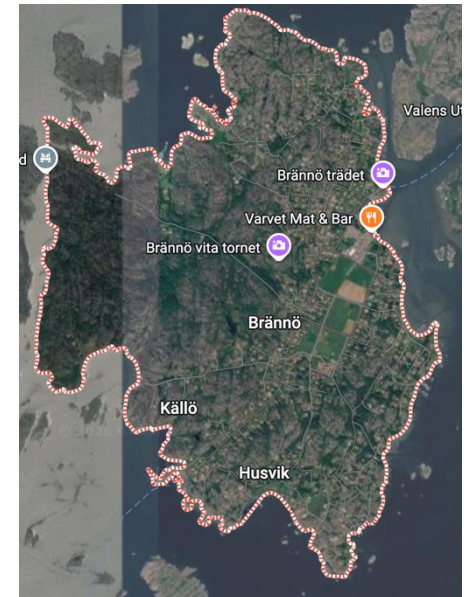
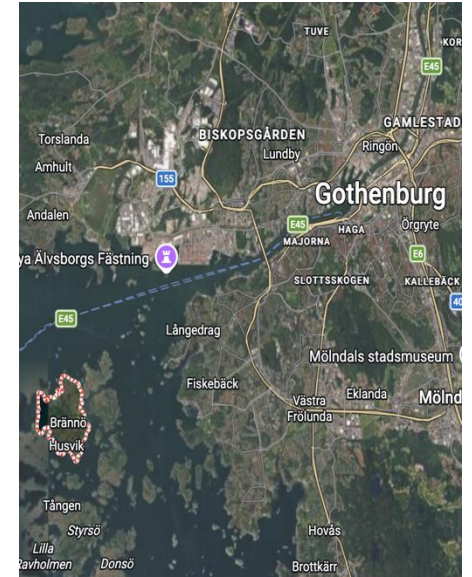
Leonardo da Vinci

Explore

- Talk in groups about your experiences exploring
- My examples
 - Buildings on campus (and other campuses)
 - Library: new books
 - Youtube → Big Think → Zina Hitz → Lost in Thought
 - Goblin Valley



Branno Island



Branno Island



Alphabet

α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω

Said Conrad Cornelius O'Donnell O'Dell,
My very young friend who was learning to spell,
A is for Ape and B is for Bear,
C is for Camel and H is for Hair...
through to Z is for Zebra, I know them all well,
Said Conrad Cornelius O'Donnell O'Dell...
From beginning to end, from the start to the close,
For Z is as far as the alphabet goes.

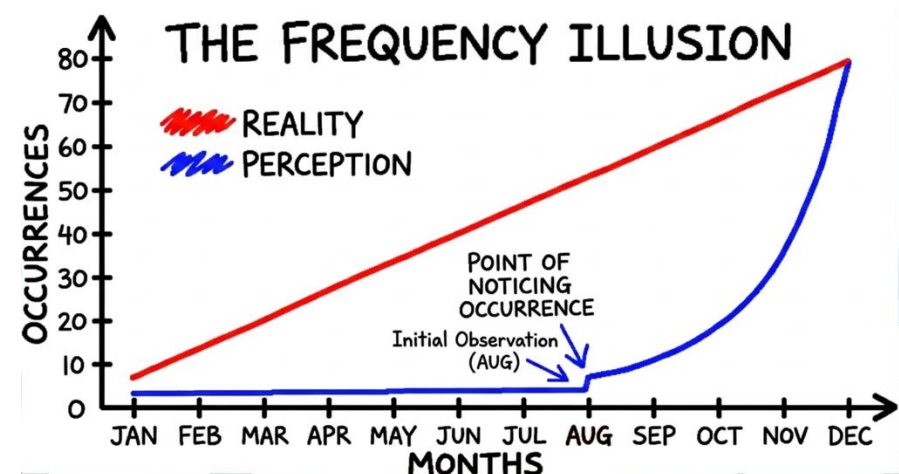
Then he almost fell flat on his face on the floor
When I took up the chalk and drew one letter more,
A letter he'd never dreamed of before...
And I said, You can stop if you want with the Z...
But not me. In the places I go there are things that I see
That I never could spell if I stopped with the Z.
I'm telling you this 'cause you're one of my friends,
My alphabet starts where your alphabet ends...



So on beyond Zebra, explore like Columbus.
Discover new letters like WUM is for Wumbus...
So on beyond Z it's high time you were shown,
That you really don't know all there is to be known.
--Dr. Seuss

Baader-Meinhof

- Notice something more often after we become more aware of it.
- You see what you are looking for, the good and the bad!
- Look around for the color blue
- Be careful of your focus and mindset



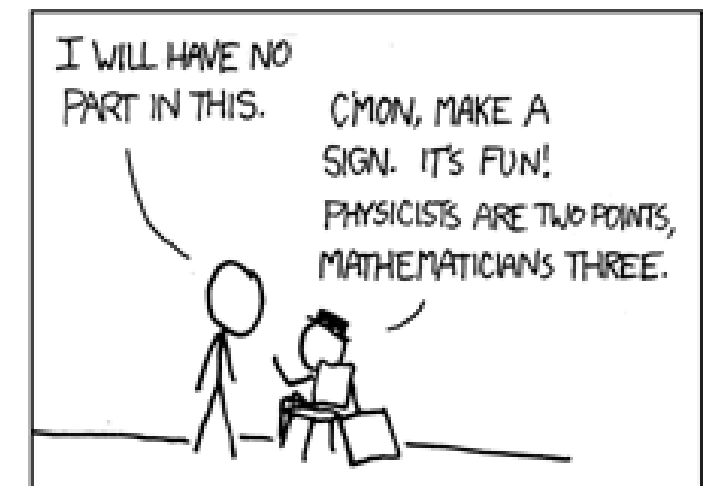
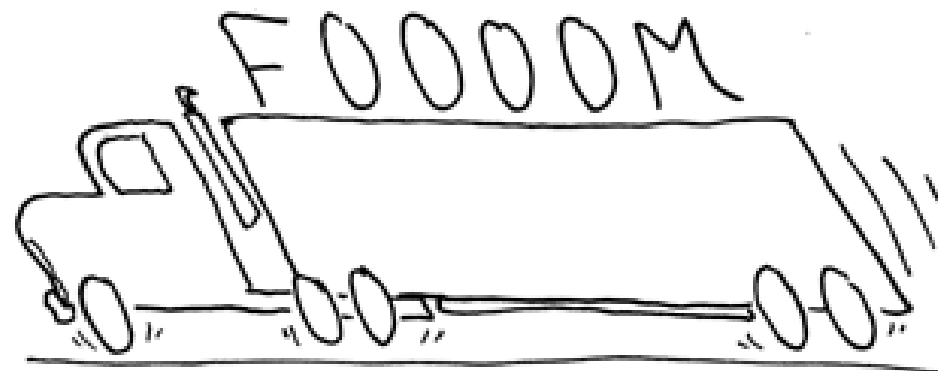
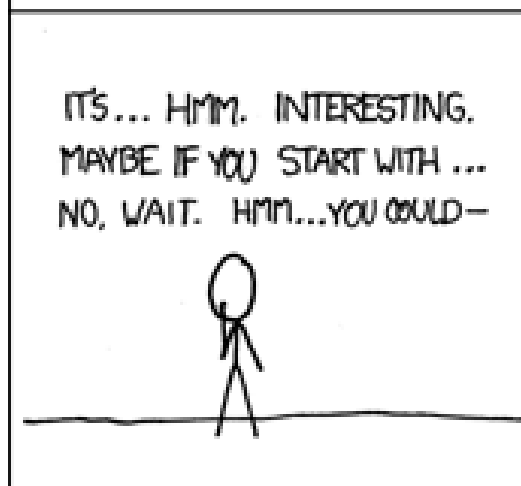
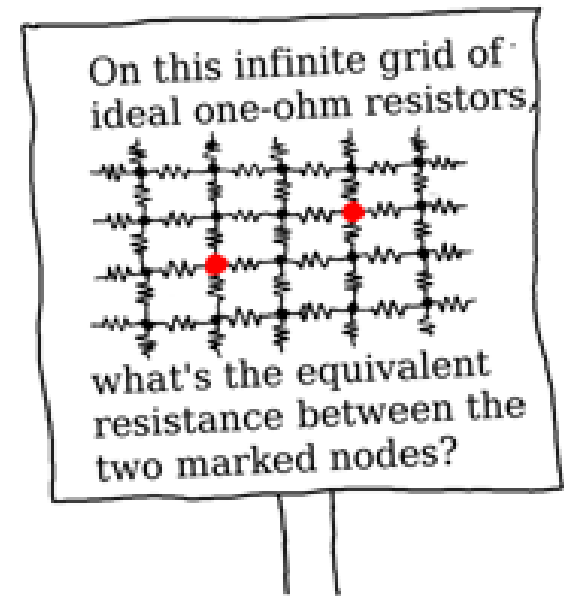
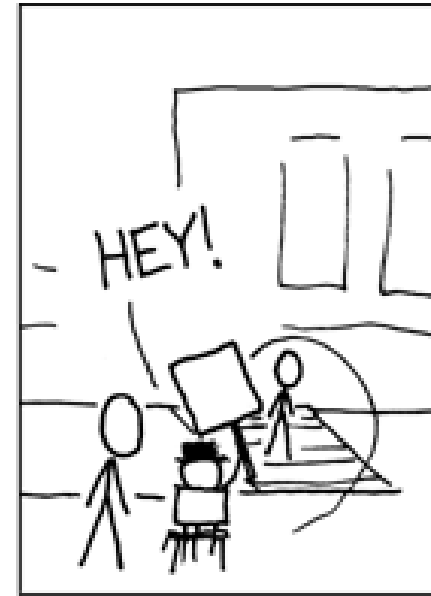
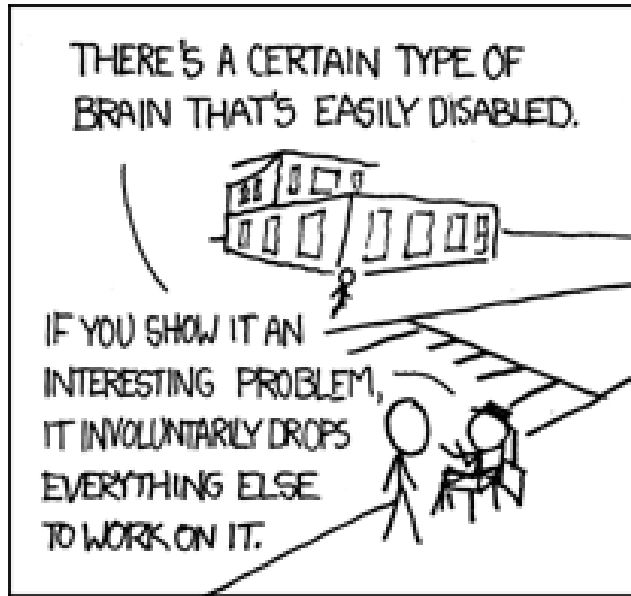
Selective Attention



Faces in a Crowd



Distraction



Doom Scrolling

And then one day you find ten years have got behind you. No one told you when to run, you missed the starting gun



You scrolled too greedily and too deep

Repost 

Congratulations, you scrolled so far that you have found a Balrog



Other Fields

- "Anyone can look for fashion in a boutique or history in a museum. The creative explorer looks for history in a hardware store and fashion in an airport"
- examples given from ideas from outside fields
 - (warship camo from Picasso)
- "Make a practice to keep on the lookout for novel and interesting ideas that others have used successfully. Your idea has to be original only in its adaptation to the problem you are working on" Edison

Exercise

Specimen	Engineering Application
1. Elm tree seeds: "wing structure"	A. Device for detecting poisonous mine gases
2. Fly: vertical takeoff	B. Infrared photography
3. Salmon: organ for detecting extremely dilute solutions of odoriferous liquid	C. Improved windmill design; safer helicopters; improved ski design
4. Burdock burr: hooked spines	D. Fiberglass-reinforced plastics
5. Moth: antenna is olfactory organ of high sensitivity	E. Improved hydrophone design
6. Snake: thermoscopic vision that detects 0.002° C. temp. gradient	F. Reliable celestial compass
7. Bamboo stalk: two-phase composite fiber construction	G. Device for detecting pollutants in water
8. Beehive: hexagonal construction	H. Vertical take-off aircraft
9. Bee eyes: segment facets filter polarized light	I. Basis for a commercial fastener
10. Seals: hearing apparatus for underwater sound detection	J. Stronger and lighter pool tables



Look for Lots of Ideas

- The best way to get a good idea is to get lots of ideas
 - Linus Pauling
 - lots of photos, a few will be good
- Look for more than one right answer
 - Don't jump at the first idea
 - Let your imagination open up.
 - The first idea provides material to work with, so to speak
 - Exercise: how to keep a fish from smelling?



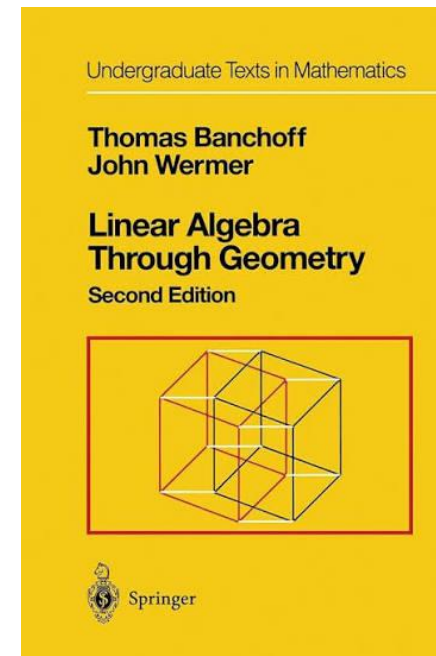
One thing begets another

Innovation is usually the result of connections of past experiences—and luck. But if you have the same experiences as everybody else, you're unlikely to look in a different direction. For example, I went to Reed College in Portland. At Reed, most of the men took modern dance classes from a woman named Judy Massey. We did it to meet women. I didn't realize how much I had learned about movement and perception from that class until a few years later when I worked for Nolan Bushnell at Atari. I was able to relate how much resolution of movement you need in terms of perceiving things in certain ways for video games. —Steve Jobs

How did you pick your major?

Find your spouse?

Library: find your book, then look around



There Be Dragons!