How to Succeed in My Class

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What I Expect from YOU after this course (Essence Sheet)

- Build a **lasting intuition** for the key ideas.
- During the course, understand it enough to solve problems.
- After the course, enjoy it enough to revisit.

ADEPT Method for Learning	
Analogy	Tell me what it's like.
Diagram	Help me visualize it.
Example	Allow me to experience it.
Plain English	Describe it with everyday words.
Technical Definition	Discuss the formal details.

How To Develop a Mindset for Deep Learning

- What **relationship** does this model represent?
- What real-world items **share this relationship**?
- Does that relationship **make sense to me**?

AI Education

Most AI Classes rarely focus on understanding. The mostly focus on solving problems with a plug and chug formula.

- Neural Networks
- Learning Rate
- Training Time

Your Understanding will Evolve Over Time

Number System	One to Five	Thousand	Million
Unary (lines in sand)	I, II, III, IIII, IIIII…	IIIIIIIIIIIIIIIIIIIIIIII IIIIIIIIIIII (lots)	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIII(lots more)
Roman Numerals	I, II, III, IV, V…	M	$\overline{M}$
Decimal	1, 2, 3, 4, 5…	1,000	1,000,000
Binary	1, 10, 11, 100, 101..	1111101000	11110100001001000000
Scientific Notation	1E0, 2E0, 3E0, 4E0, 5E0	1E3	1E6

Why All the Philosophy? Because you can never teach someone what they think they already know.

- **Factual knowledge is not understanding.** Knowing "hammers drive nails" is not the same as the insight that any hard object (a rock, a wrench) can drive a nail.
- **Keep an open mind.** Develop your intuition by allowing yourself to be a beginner again.

So what's the Point?

- Deep Learning creates **models** that have certain **relationships**
- We try to find **real-world phenomena** that have the same relationship
- Our models are **always improving**. A new model may come along that better explains that relationship (roman numerals to decimal system).

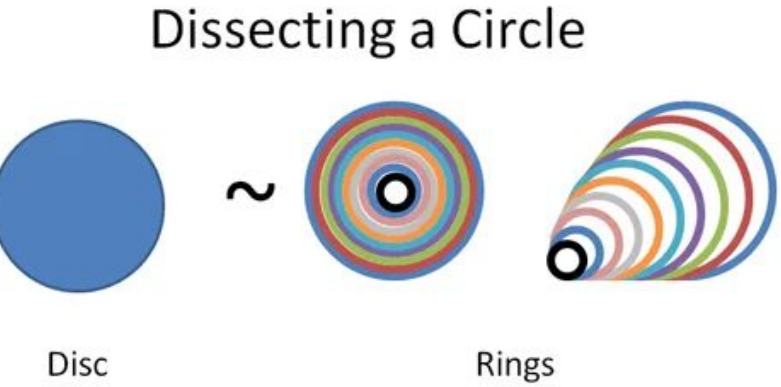
Ask honest (sometimes uncomfortable) questions about what's really working

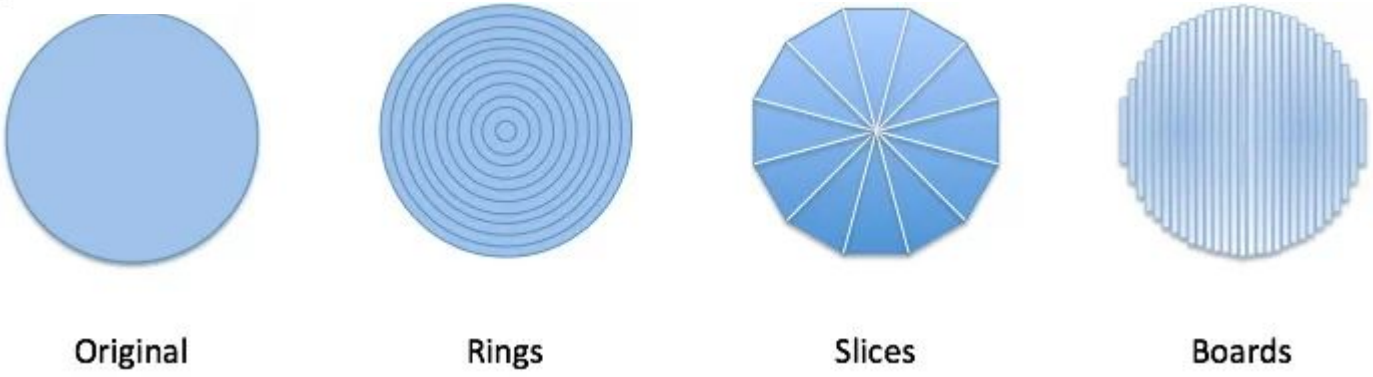
No games, no kidding ourselves, just:

- Did the concept I'm learning click?
- If not, can I find a better explanation?

Avoid Learning to Hate the subject

Priority #1 for any class is: *Do not create hate for the subject*.





Give Realistic Advice

A typical discussion:

> ***"I want to learn AI. What should I do?"***
>
> ***"Here's a [full book/course/MOOC]. It's months of effort, I didn't do it myself, but here you go."***

In other words, "go the library and read for 100 hours". The real question:

I'm interested in the subject. Is there a plan that worked for you?

Actual Realistic Advice

- **Get an Aha! moment in minutes** that motivates me to keep going (a cool diagram, example, or simulation).
- **Take a progressive journey** where even if I stop after an hour, I have some helpful insights (vs. an hour of stretching in the parking lot).
- **Maintain a desire to revisit the subject** by having an approachable, gentle introduction. I'll then keep coming back to fill in gaps over time.

Don't Ignore the Difficulties

Expect to get it wrong sometimes

We all have different goals

- **Intuitive Appreciation:** Just enjoying the music.
- **Natural Description:** Humming a tune you heard or made up.
- **Symbolic Description:** Reading and writing the sheet music.
- **Theory:** Explaining how harmonies work, why minor scales are somber, etc.
- **Performance:** Playing the official instruments.

I DO THIS EVERY DAY

- **It's honest.** It's the explanation that actually inspired me, not the theoretical explanation that requires weeks of discipline for some future payoff.
- **It acknowledges limited motivation.** How far can you get in 1 minute? 10 minutes? An hour? Pretty far, I think. And getting a win in 10 minutes means you'll come back for more.
- **It acknowledges levels of understanding.** Most people just want an appreciation for AI. Technical performance is a goal we can separate, organize, and build a path to.
- **I eat the veggies myself.** This guide has "gut checks" like "Can I describe an integral in everyday terms?" and "Can I derive the product rule on my own?". This is how I actually refresh my Calculus understanding. I do the same for AI