

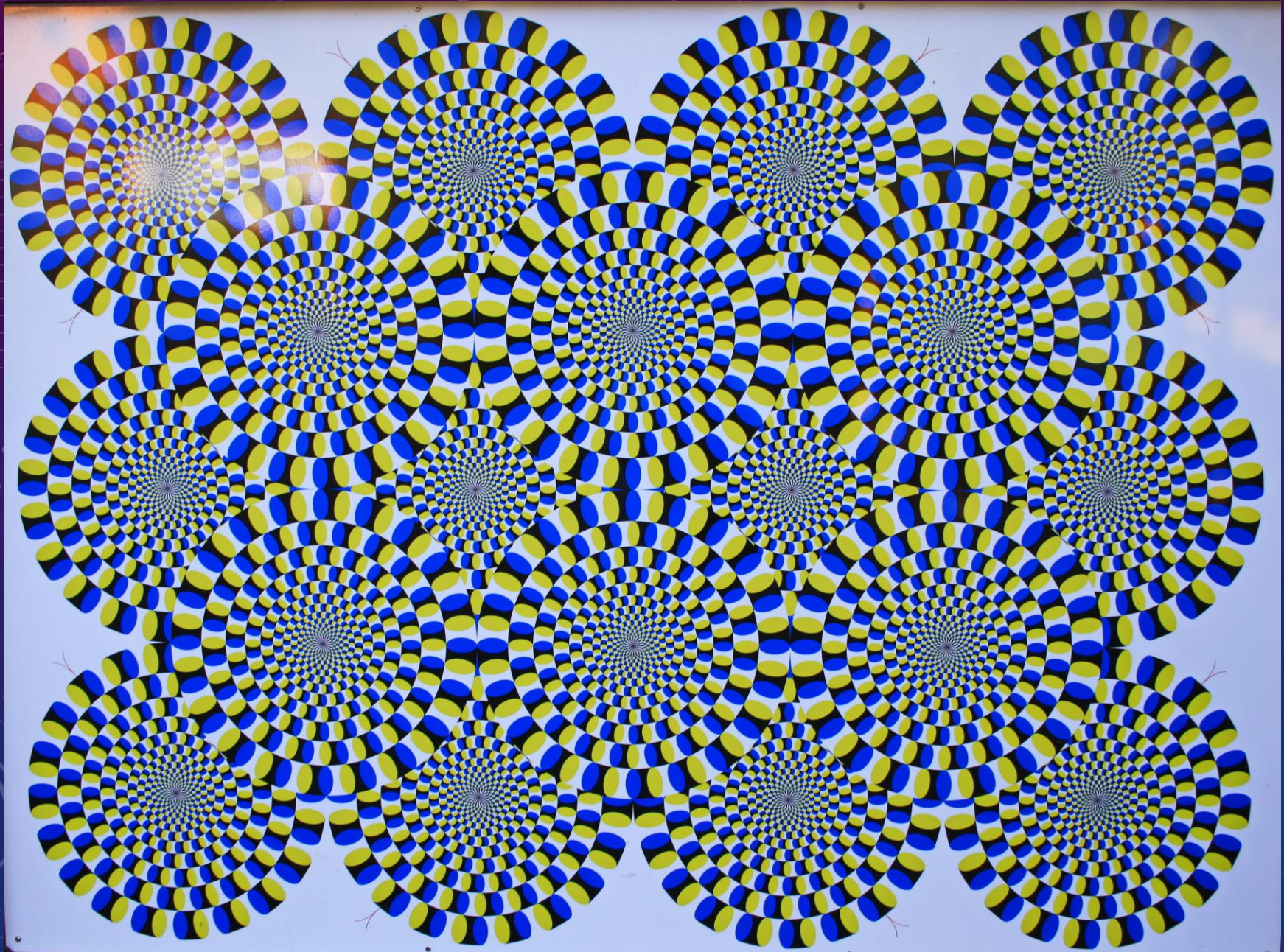
# Cognitive Illusions

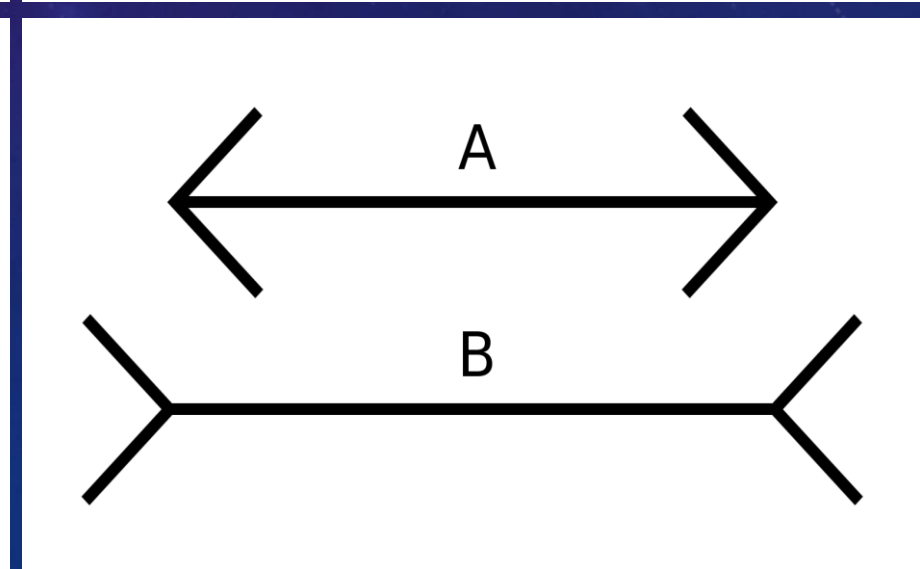
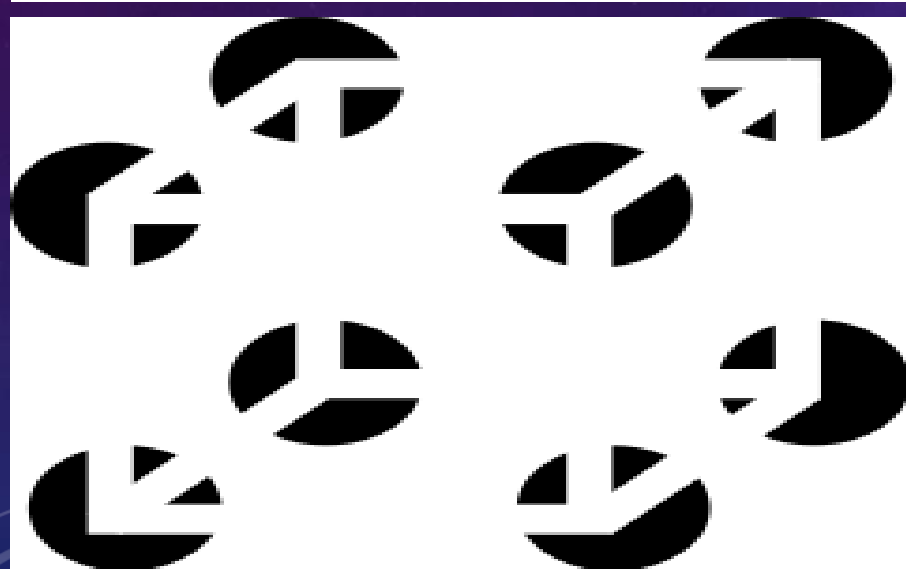
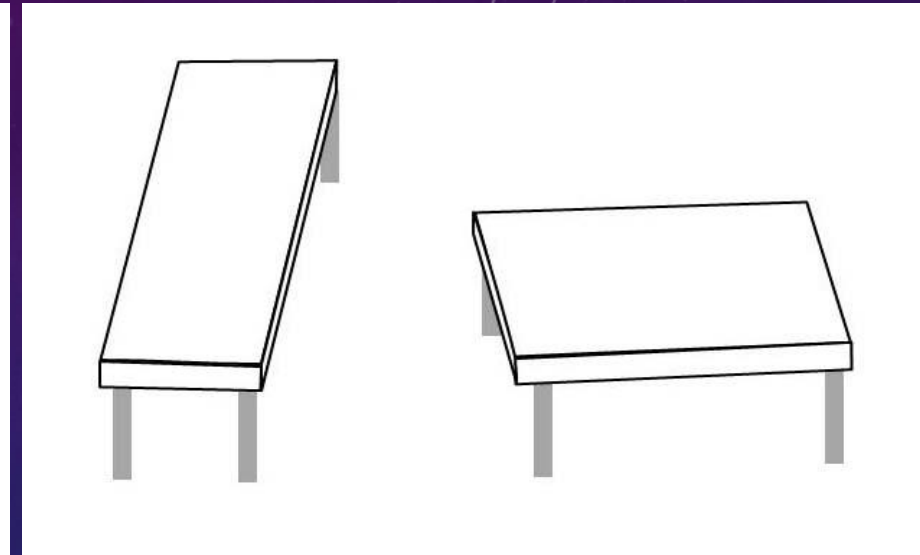
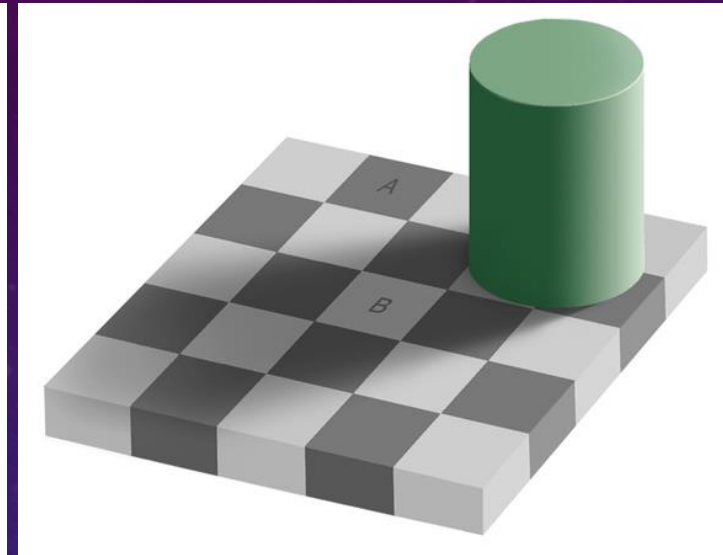
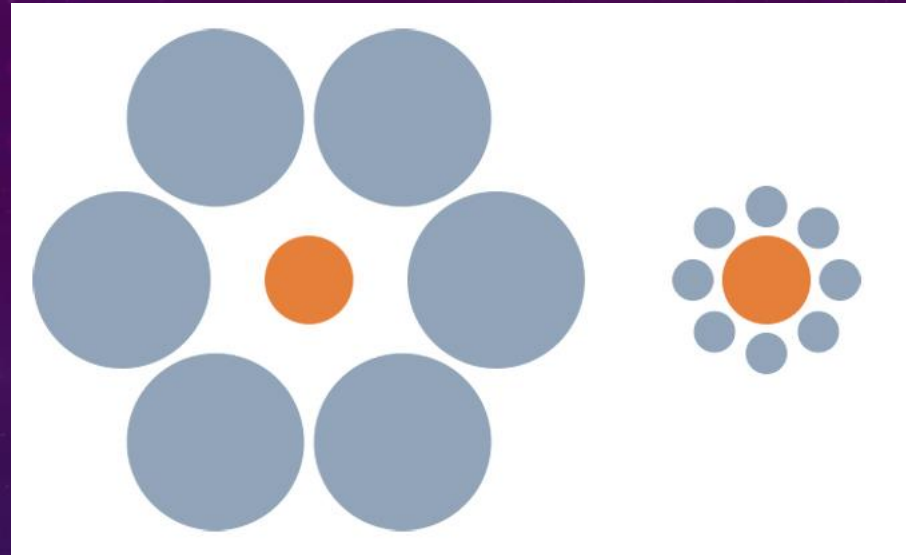
Larry Apke

Chief Agile Officer

The Job Hackers

Agile Coach at  
Splunk>





“Now, vision is our best system...if we make mistakes in vision, what is the chance that we would not make mistakes in other domains? Particularly in domains which are more complex... in which we have less practice? Domains such as decision making and economic reasoning?”

Dan Ariely

The background is a dark blue gradient with a subtle pattern of white stars. Overlaid on this are several faint, light blue technical diagrams. These include circular gauges with numerical scales (e.g., 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210) and arrows indicating direction. There are also dashed lines and solid lines forming various geometric shapes and paths, suggesting a complex system or process.

“We do not perceive the world we see, we see the world we perceive.”

Humberto Maturana



BREAKING NEWS:  
“Tens of  
Thousands” of  
fraudulent ..votes  
found in Ohio  
warehouse

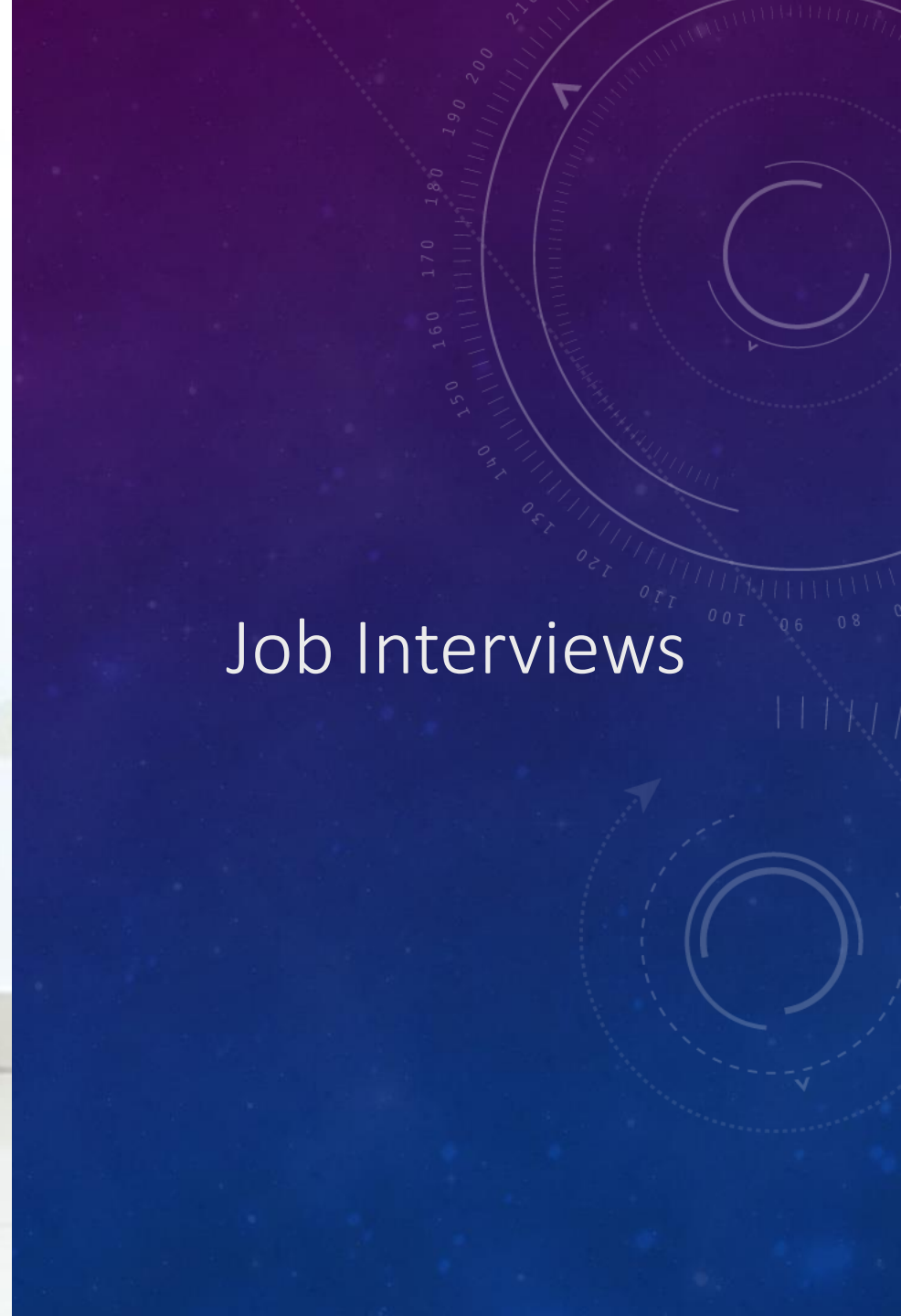


# Confirmation Bias

BREAKING NEWS:  
“Tens of  
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fraudulent ...votes  
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# Job Interviews





# Gambler's Fallacy

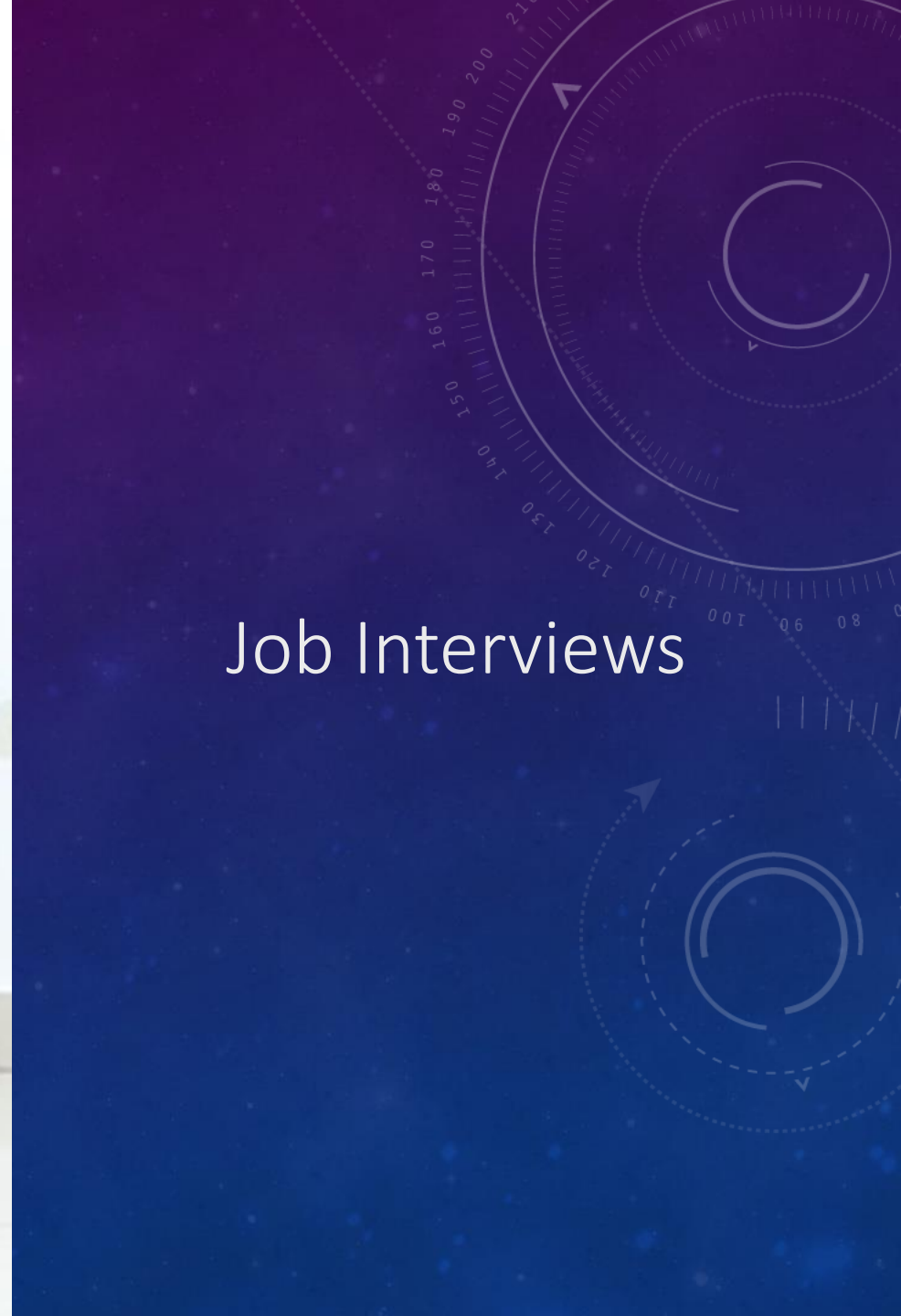
- “...What matters is not your contrast with the immediate preceding candidate, but your contrast with the last several preceding candidates. And it stems from a bias that actually has a name. It's called the gambler's fallacy.”
- “...What they find is that interviewers add the equivalent of two years of job experience to the last candidate in a row, who is weak, in order to break the streak.”





# Overconfidence Effect

Job Interviews





## Too Much Information

We notice things that are already primed in memory or repeated often.

Bizarre/funny/visually-striking/anthropomorphic things stick out more than non-bizarre/unfunny things.

We notice when something has changed.

We are drawn to details that confirm our own existing beliefs.

We notice flaws in others more easily than flaws in ourselves.

## Confirmation Bias

“We tend to accept information that confirms our prior beliefs and ignore or discredit information that does not. This confirmation bias settles over our eyes like distorting spectacles for everything we look at.”

Kyle Hill

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## Confirmation Bias

“A scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die and a new generation grows up that is familiar with it.”

Max Planck

## Not Enough Meaning

We find stories and patterns even in sparse data.

We fill in characteristics from stereotypes, generalities, and prior histories whenever there are new specific instances or gaps in information.

We imagine things and people we're familiar with or fond of as better than things and people we aren't familiar with or fond of.

We think we know what others are thinking.

We project our current mindset and assumptions onto the past and future.

## Survivorship Bias

“Survivorship bias or survival bias is the logical error of concentrating on the people or things that made it past some selection process and overlooking those that did not, typically because of their lack of visibility.”

Wikipedia

## We Need to Act Fact

We need to be confident in our ability to make an impact and to feel like what we do is important.

We favor the immediate, relatable thing in front of us over the delayed and distant.

We're motivated to complete things that we've already invested time and energy in.

We're motivated to preserve our autonomy and status in a group, and to avoid irreversible decisions.

We favor options that appear simple or that have more complete information over more complex, ambiguous options.

## Dunning Krueger Effect

“A cognitive bias in which people of low ability have illusory superiority and mistakenly assess their cognitive ability as greater than it is.”

Wikipedia

## What Should We Remember?

We edit and reinforce some memories after the fact.

We discard specifics to form generalities.

We reduce events and lists to their key elements.

We store memories differently based on how they were experienced.

## Suggestibility

“Suggestibility is the quality of being inclined to accept and act on the suggestions of others where false but plausible information is given and one fills in the gaps in certain memories with false information when recalling a scenario or moment.”

Wikipedia



# COGNITIVE BIAS — REAL WORLD TRAGEDY

- 2015 saw the release of the movie Everest which tracks the tragic story of a May 1996 expedition in which five experienced climbers died.
- [“The Interaction of Cognitive Bias, Psychological Safety and System Complexity”](#) published in the California Management Review journal, Michael Roberto argues that the Sunk Cost Effect, Overconfidence Effect, Recency Effect played a role in the tragedy.



**Met-Ed / GPU**

**THREE MILE ISLAND  
NUCLEAR  
GENERATING STATION**

**Authorized Personnel Only**

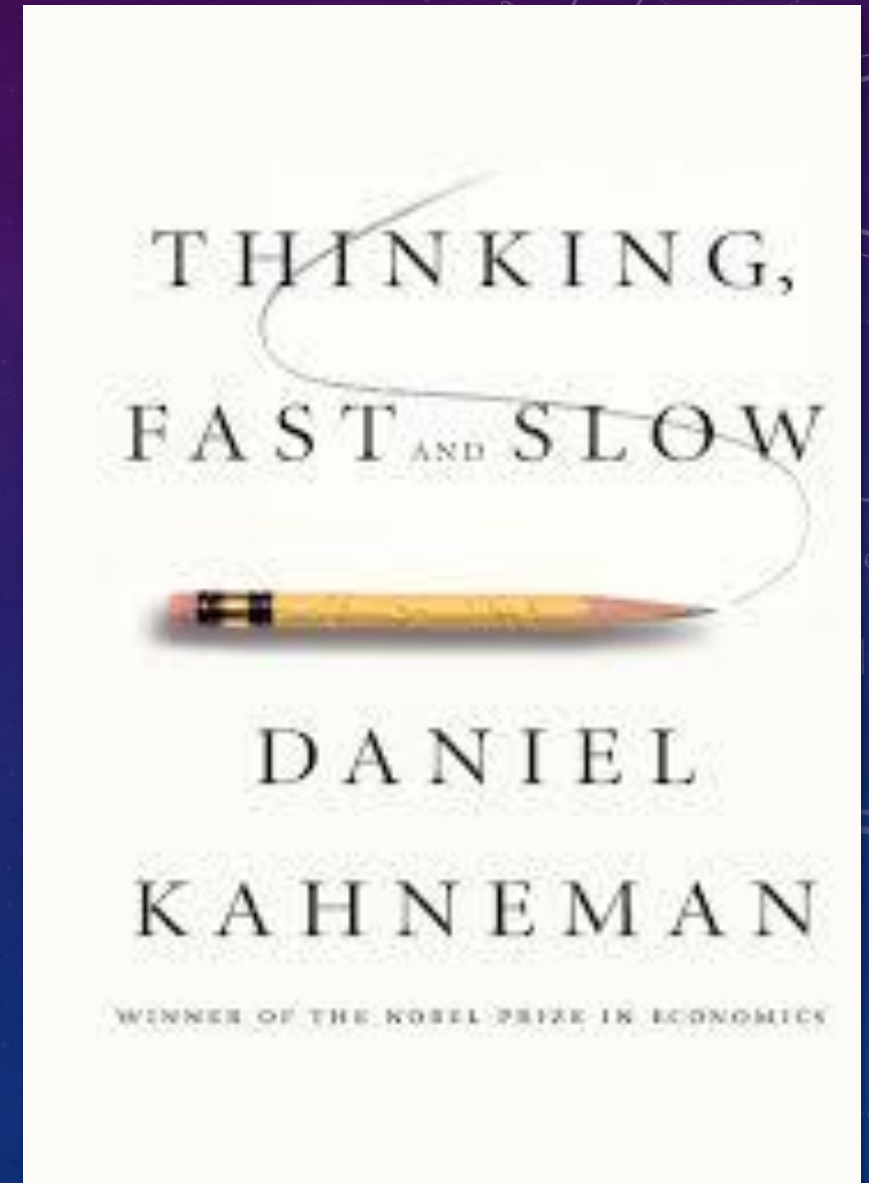
**OBSERVATION CENTER  
3/4 Mile Ahead**

## COGNITIVE BIAS — REAL WORLD TRAGEDY

- Cognitive Bias is present everywhere and most likely linked in some way to most tragedies, but has been explicitly linked to:
- 2007 Global Financial Crisis
- Three Mile Island
- Chernobyl
- Loss of the Mars Climate Orbiter
- Space Shuttle Challenger
- Ineffective Response to Hurricane Katrina

# COGNITIVE BIAS – WHAT CAN BE DONE?

- The first step is to realize that our brains do not work the way we think they do. Daniel Kahneman refers to two separate systems in his book [“Thinking, Fast and Slow”](#) (which he refers to as System 1 and 2).
- We are more an accumulation and combination of multiple neural pathways that result in human decisions. Often decisions are made without our conscious mind being aware. Decisions which we later rationalize.



# WHAT CAN BE DONE?

- Cultivate and promote the ideas of intellectual humility and curiosity.
- Understand systems thinking and consider the entire system in addition to isolated parts of the system.
- Understand the scientific method and apply it.
- When possible, “pilot” new ideas to gather true data about efficacy before unveiling large, overarching changes (assume you could be wrong).
- Understand your mental models and cultivate more mental models. [Farnam Street Blog has 109 mental models.](#)
- Understand the true reason for diversity. ([Superforecasters](#)).
- Understand the growth mindset.
- Foster an environment where such things are encouraged.
- Create and support an environment of continual learning both personal and professional.

# WHAT CAN BE DONE?

- Books on behavioral economics, cognitive science, social psychology. Use Wikipedia references. Some links below.

[Predictably Irrational](#)

[Freakonomics](#)

[Irrationality: The Enemy Within](#)

[Hacking Human Nature for Good](#)

[The Invisible Gorilla: And Other Ways Our Intuitions Deceive Us](#)

[Misbehaving: The Making of Behavioral Economics](#)

[The Upside of Irrationality](#)

[Think Like a Freak](#)

[Mistakes Were Made \(But Not by Me\)](#)

[Sway: The Irresistible Pull of Irrational Behavior](#)

[SuperFreakonomics: Global Cooling, Patriotic Prostitutes, and Why Suicide Bombers Should Buy Life Insurance](#)

[The Hidden Brain: How Our Unconscious Minds Elect Presidents, Control Markets, Wage Wars, and Save Our Lives](#)



It is the mission of The Job Hackers to provide individuals with the knowledge and experience needed to navigate the complex world of knowledge work.

- Our class size has increased from 19 in January of 2018 to 80 in January 2019.
- Over 300 participants have completed the class and received a certification of attendance.
- Over 55% of our participants are women.
- Our average age is 42 - 29% over 50; 57% 30-49; and 14% under 30.
- Over 50% of participants self-identify as non-white.
- Over 36% get jobs within 90 days of taking the class; and over 50% of those jobs pay over \$100k.

# Questions

