A Young Technology Professional's Guide to Navigating Economic Booms and Busts

Yingquan Li (Tue. 2/13/24 @ 7:00 PM EST)
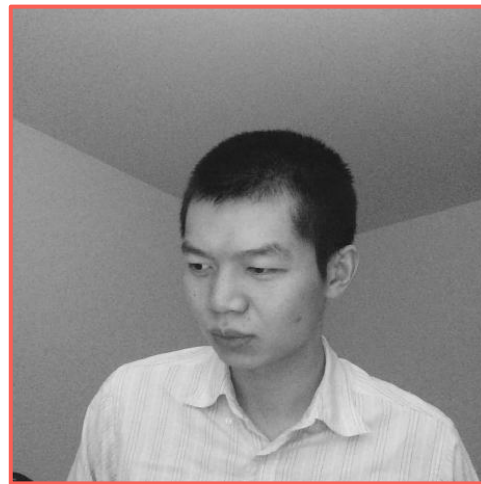**Brendan Iribe Center For Computer Science and Engineering**; **College Park, MD**
ACM UMD and **ACM D.C.**

About Me

Yingquan Li

- Virginia Tech in '23
    - M.S. in IT
- UMD - College Park '14
    - B.S. in Math/Minor in C.S.
- Previous worked for 8 years at:
    - The Wharton School (Research)
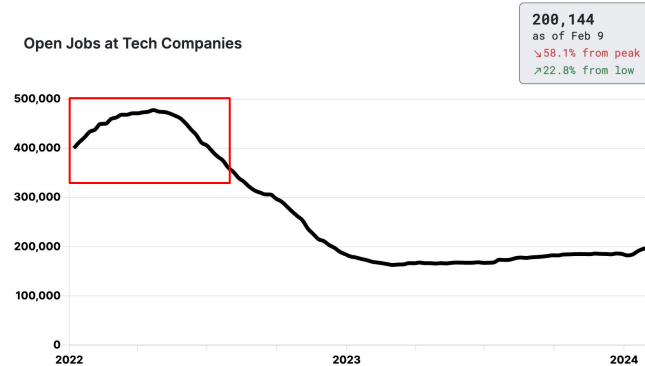   - Deloitte
    - PwC
    - Gartner

Question!

Poll: How many of you are having trouble finding an internship or a full-time role recently? Raise your hand if so!

When Times Were Good (2021 - Summer, 2022)!

# of Open Tech Jobs

Total open tech jobs at tech startups, tech unicorns, and public tech companies

Open Jobs at Tech Companies

200,144
as of Feb 9
↘58.1% from peak
↗22.8% from low

- As recently as 2022, the tech industry was flush with capital and hiring was booming like never before.
- For most of the year 2022, people were talking about the **Great Resignation** and **Quiet Quitting**.
- People were getting offers like never before, with compensation packages like never before.
- This **Age of Easy Money** was fun and there was optimism!

As We All Know: The Technology Industry Has Changed

Tech layoffs since COVID-19
Source: https://layoffs.fyi
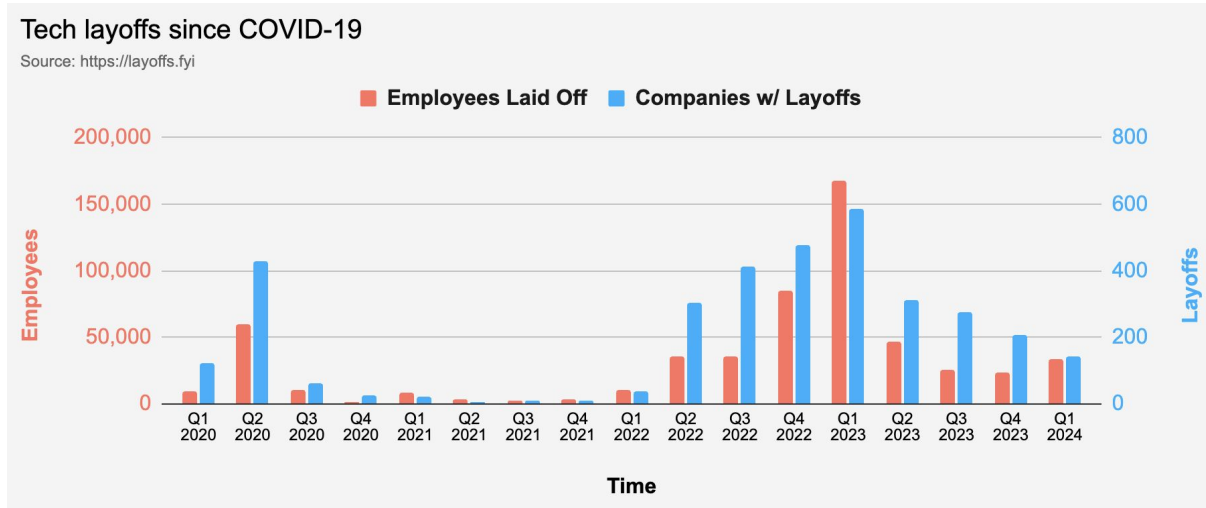
- It's been observed that there's now: more *layoffs*, more *competition*, jobs *less stable*, companies more *picky* on hiring than ever before. What happened?!
- These trends might surprise younger people, but they do not surprise older people who have experienced **economic booms and busts** before.
- It's important to understand how booms and busts happen. Moreover, there are very *practical* strategies that you can employ to give yourself more opportunities even in a tough market.

I Believe That…

1. History tends to repeat itself, and yet how quickly do people forget history. We can learn a lot from the **2000 dot-com crash** and the **08/09 Financial Crisis**.

2. There are root causes as to why the economy is the way that it is today in 2024.

3. We can have an idea (though never exact) of where the economy is going. **Question For You To Think About**: Is predicting economic trends even important? 🤔
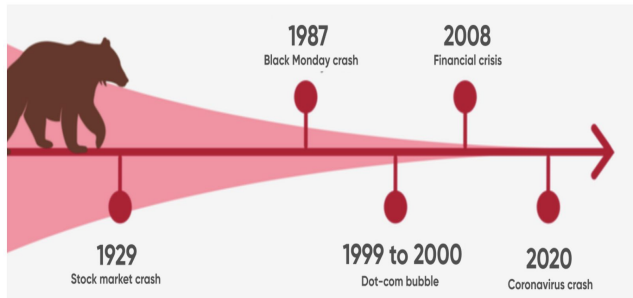
1) **A Brief History Lesson**

Economic Booms and Busts

THE BUSINESS CYCLE
The national economy fluctuates resulting in periods of boom and bust.
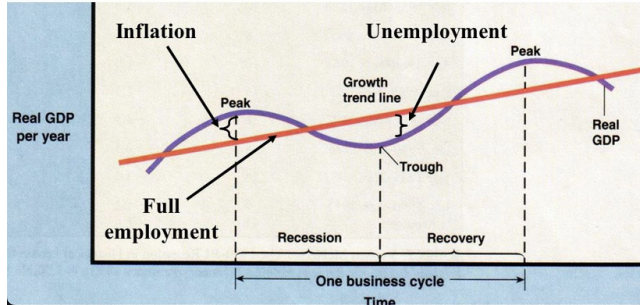

Biggest stock market crashes in history

- "The **boom and bust cycle** is a process of economic expansion and contraction that occurs repeatedly." - *Investopedia*
- All capitalistic economies experience booms and busts.
- Boom and bust cycles are caused by many factors. Some important ones include:
  - Interest Rates/Ease of Capital
  - Supply and Demand in the Labor Force
  - General Investor Sentiments/Optimism

The Federal Reserve Dictates **Monetary Policy** in the US
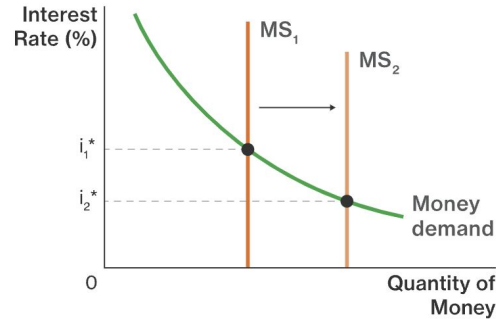
Easy money at low interest rates is often what creates **bubbles**.
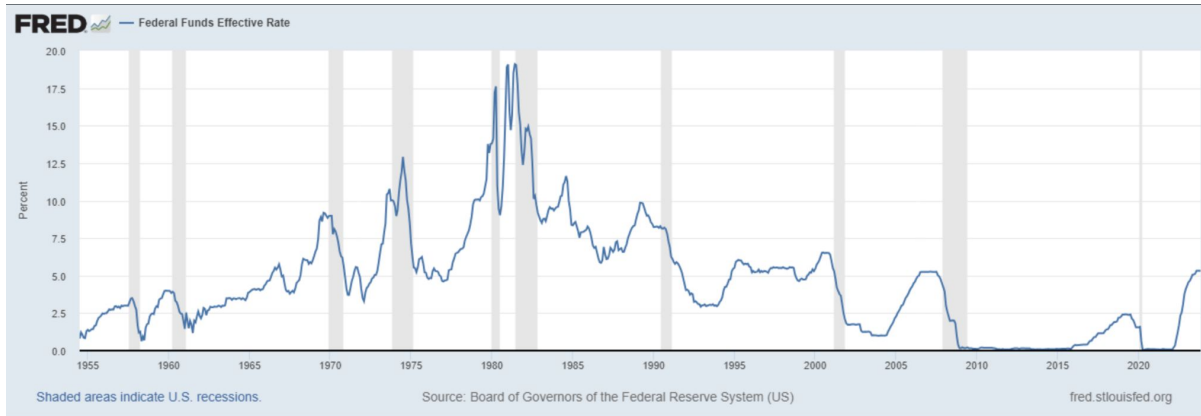
Bubbles, however, have always eventually popped.

Case Study #1: 2000 Dot-Com Bubble

- Due to the exuberance of the Internet and it's commercialization, low interest rates, and U.S. optimism, the tech industry was flush with capital in the 90s.

- From 1995 - 2000, venture capital firms were throwing money at any business that was a **.com**, regardless of financial viability/profitability.

- **.com** companies IPOed like never before. The NASDAQ peaked at 5048.62 on 3/10/2000.

- Like any bubble it was only a matter of time before the fun ended! What caused the bubble to burst? **Overvaluation**, **unsustainable business models**, **rising interest rates**, **poor earnings after IPO**, **market saturation**.

- By the end of 2001, the vast majority of **.com** companies went bust and trillions in market capitalization was lost.

kozmo.com	On Demand Delivery	Raised $250M. Out of business 3 years after launch.
webvan	Online grocery delivery	IPO: 1999. Bankrupt: 2001
boo.com	Fashion eCommerce	Launched: 1999. Bankrupt: May 2000
GeoCities	Web hosting service	Acquired by Yahoo for $3.57B. Shut down in 2009
pets.com	Pet food and supplies	IPO: 2000. Bankrupt: 300 days later
flooz	Online currency	Bankrupt in 2001
Xenote iTag	Physical device to record and later identify songs	Shut down in September 2000
DEN	Original online video content	Cancelled IPO: Feb. 2000. Bankrupt: May 2000

Lessons Learned (Dot-Com Crash)

1. When a bubble is building, it's really hard to tell. It's easy to say in hindsight, but really hard to tell in the moment.

2. When there's a bubble, it's really hard to think that times won't change and that the good times are going to stay forever.

3. **The change from good times → bad times is sharp and rapid**. **The change from bad times → good times will invariably take longer, but bad times NEVER last forever**. "**Things get worse before they get better**."

4. I like to tell myself to: "Prepare for **peace** during times of **war**. Prepare for **war** during times of **peace**."

Case Study #2: 2008-2009 Financial Crisis ("Great Recession")

- Bubble created by an exuberance in real-estate, where it was easy to take out mortgages with zero-cash down.

- Due to all time low interest rates after the dot-com crash and 9/11, lenders took on risk by giving out **subprime mortgages**, which they sold to institutional investors in the form of *derivatives*: **mortgage-backed securities** (**MBS**).

- The bubble burst in Sept. 08, when **Lehman Brothers** (4th largest investment bank) filed for bankruptcy.

- At its height in 09, the unemployment rate in the U.S. was ~10%. The recession affected all industries.

- The U.S. government had to pump **~$787B** to stimulate the economy. The economy took around 5-6 years to recover from the "great recession", recovering fully in 2014/2015.
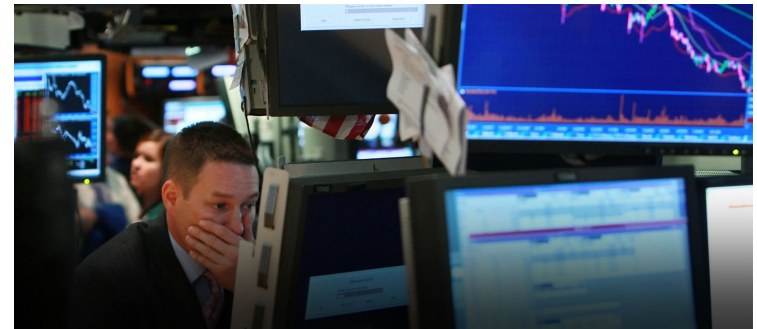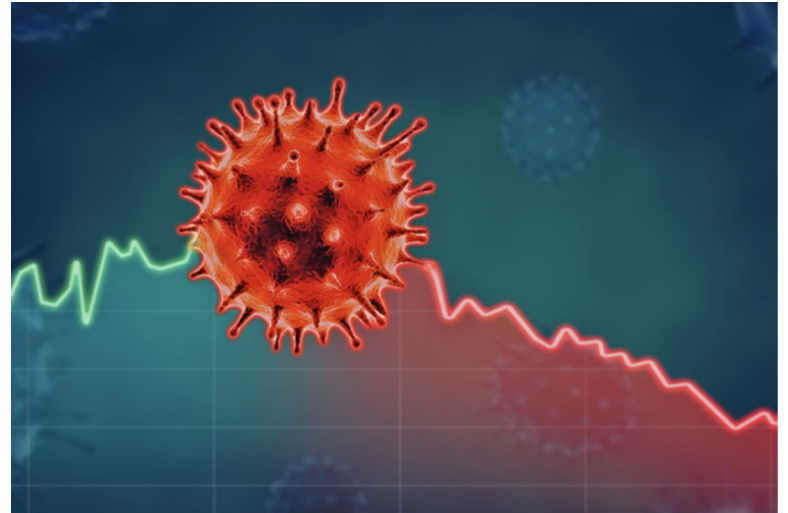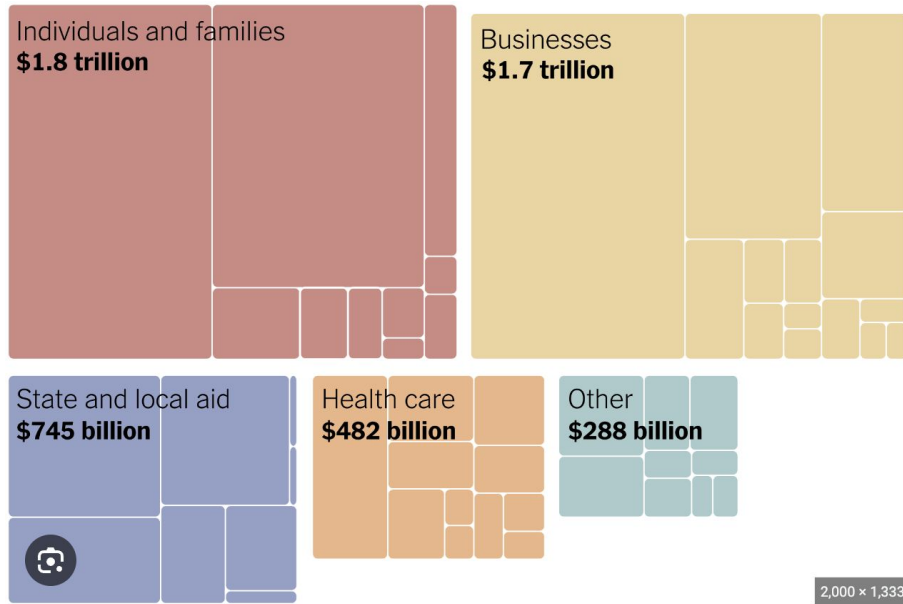
Lessons Learned (The "Great Recession")

1. Talk to anyone today in their late 30s and early 40s, and the "great recession" of 08/09 will be indelible in their memories.

2. When times are tough, you have to take what you can get from the market. You have to be **adaptable**.

3. **Even though you are graduating with a specific degree, you may have to consider jobs that are adjacent to what you really want to do, while keeping your skills sharp. This way, you can jump back into your dream job once the market improves**.

2) **The Current Market Today**

In a way, the tech industry has been a bubble building for years and we are seeing it tip towards contractionary trends recently.
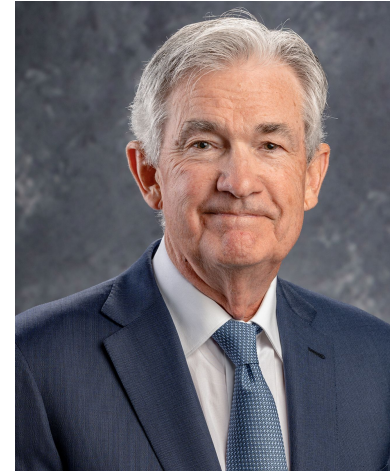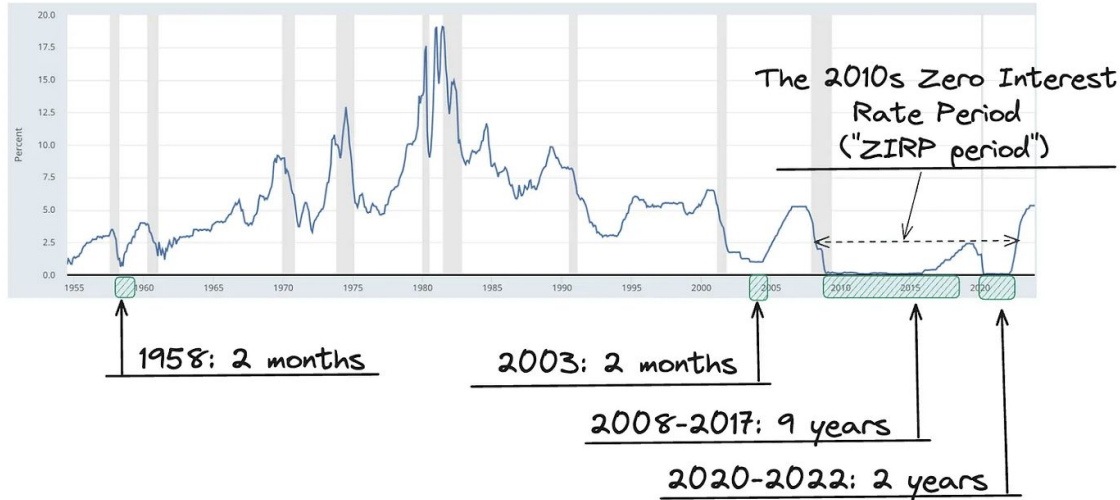
There are **four factors** that contributed to the current job market we see today.

#1: **The Pandemic + Economic Stimulus** (~$5 Trillion)

Individuals and families
$1.8 trillion

Businesses
$1.7 trillion

State and local aid
$745 billion

Health care
$482 billion

Other
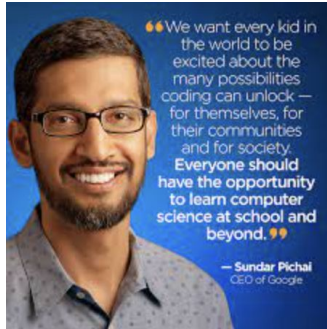**$288 billion**

2,000 × 1,333

#1 (*Continued*): Near Zero Interest Rates for ~10 Years + Subsequent Interest Rate Increases to Combat **Inflation**

Periods where the interest rate in the US was at 1% or below

The 2010s Zero Interest Rate Period ("ZIRP period")

1958: 2 months

2003: 2 months

2008-2017: 9 years

2020-2022: 2 years

#2: **Supply and Demand in Computing Talent** (Both Academic and Bootcamps)

> "We want every kid in the world to be excited about the many possibilities coding can unlock — for themselves, for their communities and for society. Everyone should have the opportunity to learn computer science at school and beyond."
>
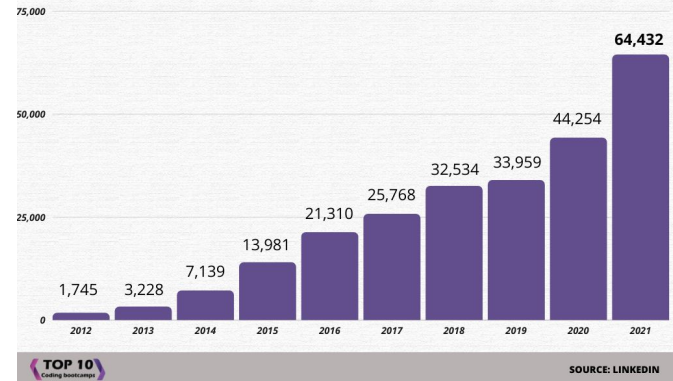> — Sundar Pichai
> CEO of Google

Everyone needs to code culture!

Bachelor's and Master's Degrees in Computer and Information Sciences from 2001-2021
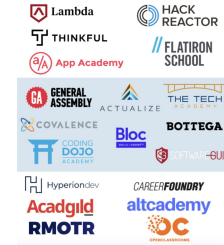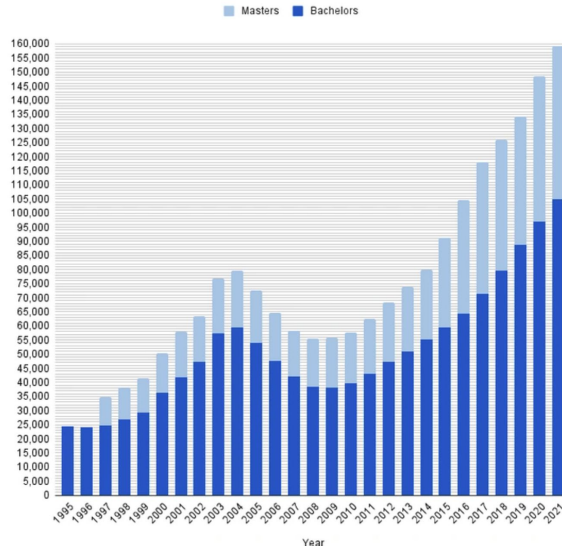
**Bootcamps Students and Graduates**

According to projections, 64,432 students enrolled in Coding Bootcamps students in 2021.

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1,745	3,228	7,139	13,981	21,310	25,768	32,534	33,959	44,254	64,432

TOP 10 Coding bootcamps

SOURCE: LINKEDIN

#3: Elon Musk's Influential Take Over of Twitter (Oct. 2022) → **Keep Senior Engineering Talent, Lay Everyone Else Off**
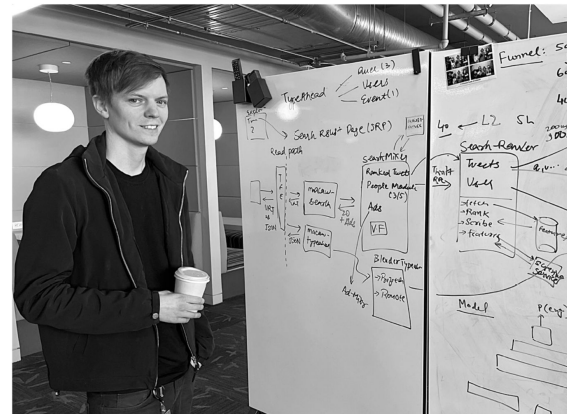
#4: The Rise of **Generative AI**
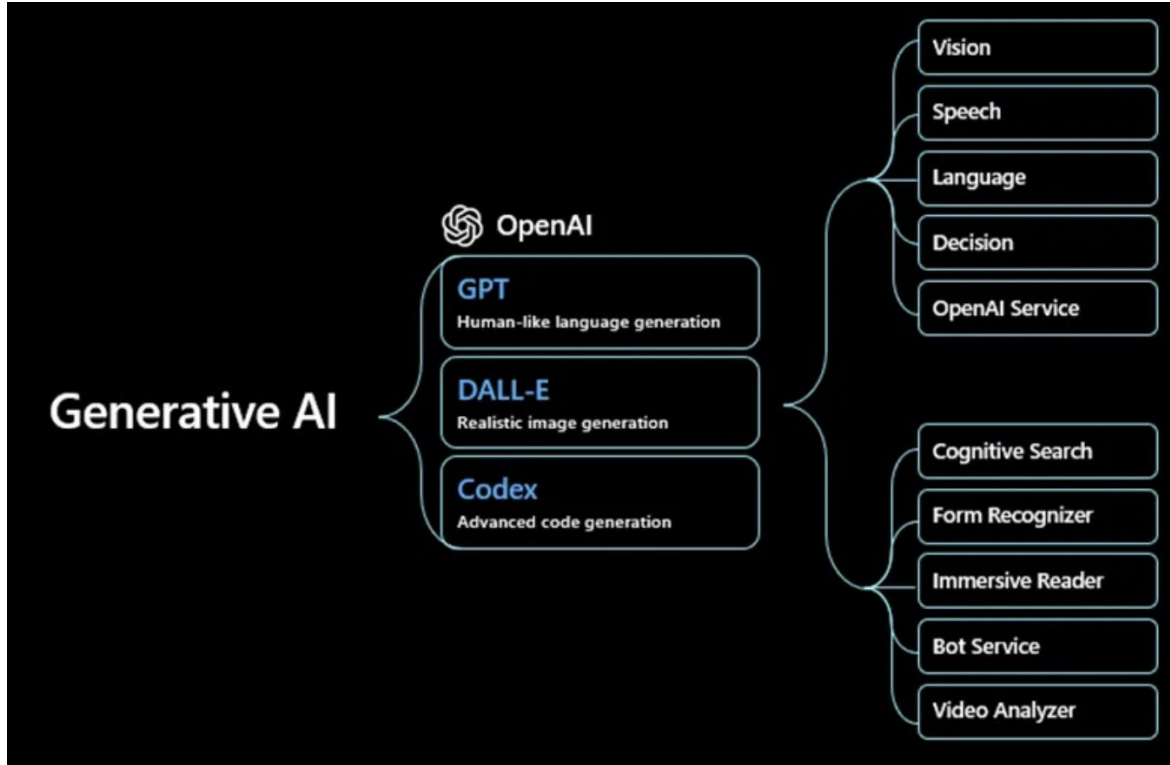
These **four factors** in combination have contributed to the tough job market that we see today.

3) **Where is the Market Going?**

The Reality Is No One Knows!

- From history, we know that it will take anywhere from four-six years before the market fully recovers from a full recession. However, _the past **DOES NOT** dictate what's going to happen in the future_!

- Right now, my opinion is that we are in a **soft recession**. Can anyone accurately predict the future? It's been **DOUBTFUL** so far!! Therefore, the key point is: **Don't worry about what is beyond your control (i.e. the economy, what other people are doing)**!

- **Make sure that you are prepared because the storm will eventually end one day; you never know when**. **On that day when it ends, will you be ready to go if an opportunity presents itself in front of you**?

How to Differentiate Yourself As a New Grad In a Tough Market and **Stay Prepared** (*Practical Advice*)

- Code! Develop strong computer science ==**fundamentals**==: Algorithms, databases, computer networking, cloud technologies, DevOps best practices. If you don't have the practical experience, learn how to talk about these technologies ***CONVINCINGLY*** like a software architect would*.*

- Get ==**visibility**==: Speak at conferences, teach others, win a hackathon, build projects, start a blog, do YouTube.

- ==**Network**==: Create opportunities for yourself and never turn down any opportunity to network with new people. ==**It's not just WHAT you know; it's also WHO you know**==.

- Never be ==**afraid to apply to ANY job**==: Better to try and *fail* / *get ghosted* / *get rejected* than to not try at all.

- Write good ==**documentation**==: Writing good documentation is one of the **BEST** ways to differentiate yourself from your fellow peers.

- ==**Volunteer**== in CS/engineering-related organizations: Get others to perceive you as a **LEADER**. One of the best ways to do it is to lead an organization by volunteering!

Reiterating the **Practice Mindset** You Need to Have Again:

"Prepare for **peace** during times of **war**. Prepare for **war** during times of **peace**."

When the storm ends and an opportunity is inevitably in front of you, have you done everything you can such that you are **prepared** and **ready to go**?

Thank you!

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