

Software Engineer's Life Manual

How to live and build a successful career as a software developer,
even if you are self-taught

Module 01

Let's Start!

Ali Samanipour

March. 2023

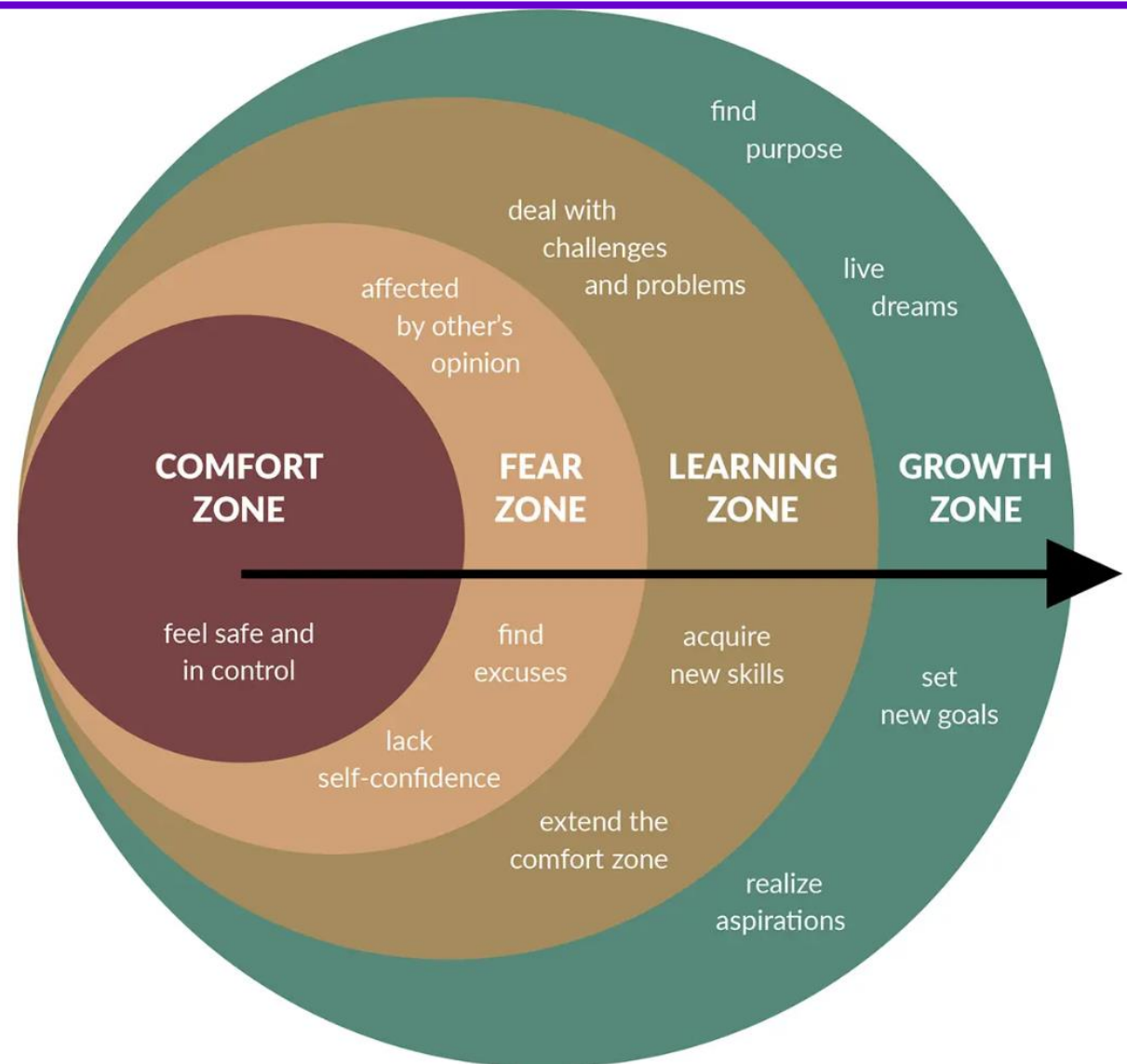
First Things First

Learn to cook instead of memorizing a recipe,
Learn fishing instead of asking for a fish,
Learn how to learn

Form Comfort to Growth

“If the road is easy,
you're likely going
the wrong way.”

Terry Goodkind



- 1 Mindset and Attitude
- 2 Skills Sets
- 3 Portfolio & Resume
- 4 Learning Roadmap
- 5 Career Path
- 6 Job Finding

Growth Mindset and Attitude

“Nothing in this world can take the place of good old persistence. ***Talent won't.*** Nothing's more common than unsuccessful men with talent. ***Genius won't.*** Unrecognized genius is practically a cliché. ***Education won't.*** Why the world is full of educated fools. **Persistence** and determination alone are all powerful.”

Raymond Albert Kroc

Growth Mindset and Attitude

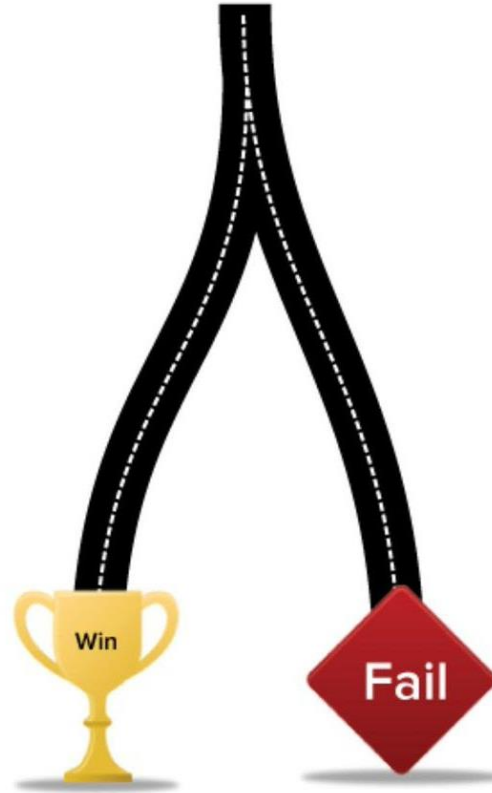
“The Fifth Law: With persistence success can come at any time.”

Albert-László Barabási

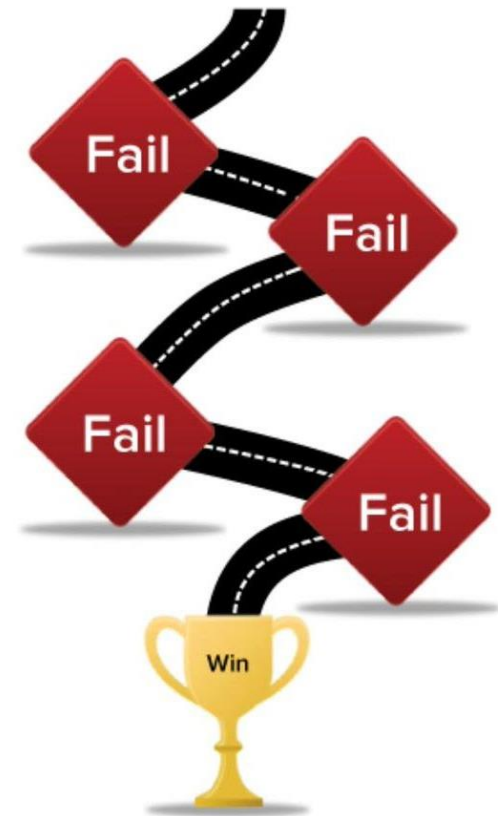
Congratulations!!
You've Don It

Fail Fast
Fail Early
Fail Forward

What Most
People Think



What Successful
People Know



@douglaskarr

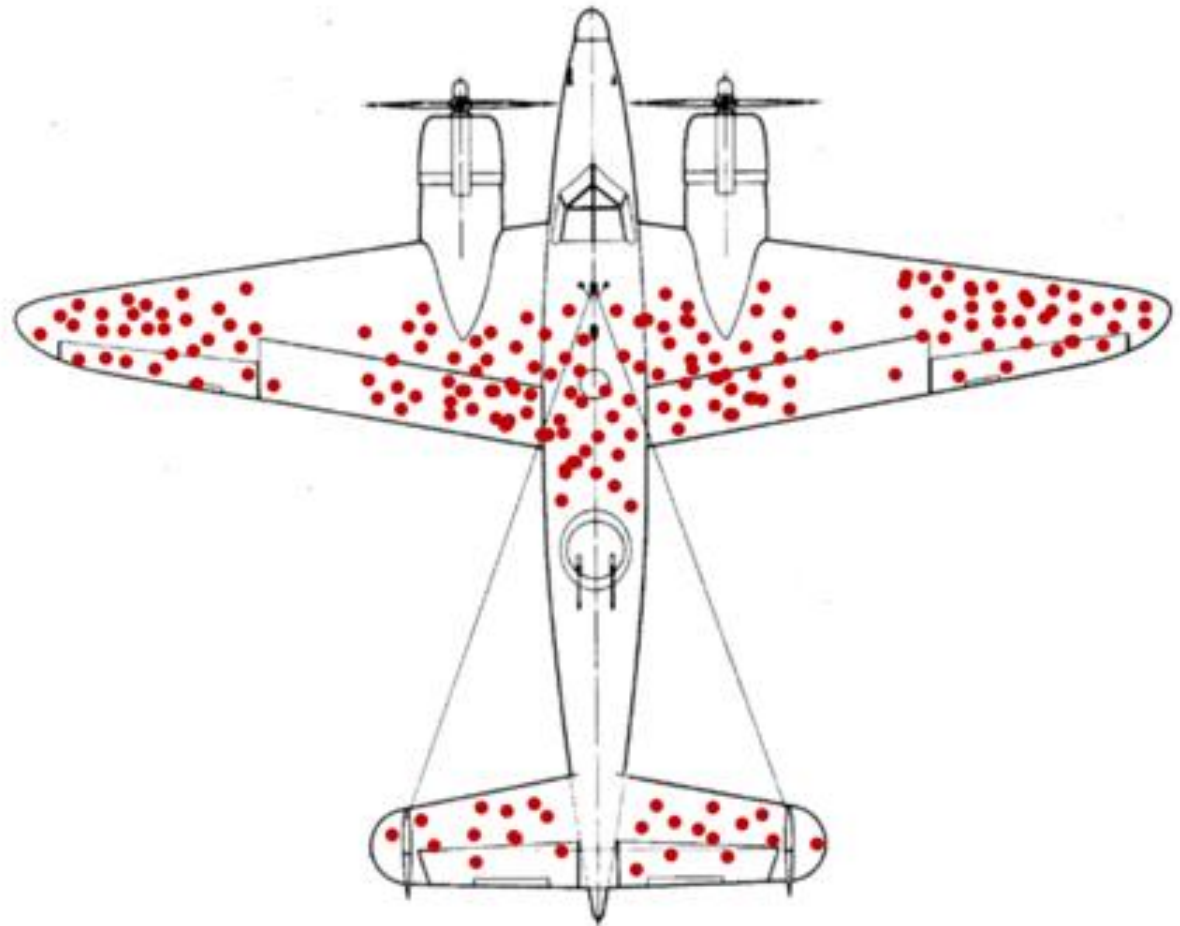
Growth Mindset and Attitude

““If you want to be successful, **learn from the other people's mistakes**, don't learn from the successful stories.”

Jack Ma

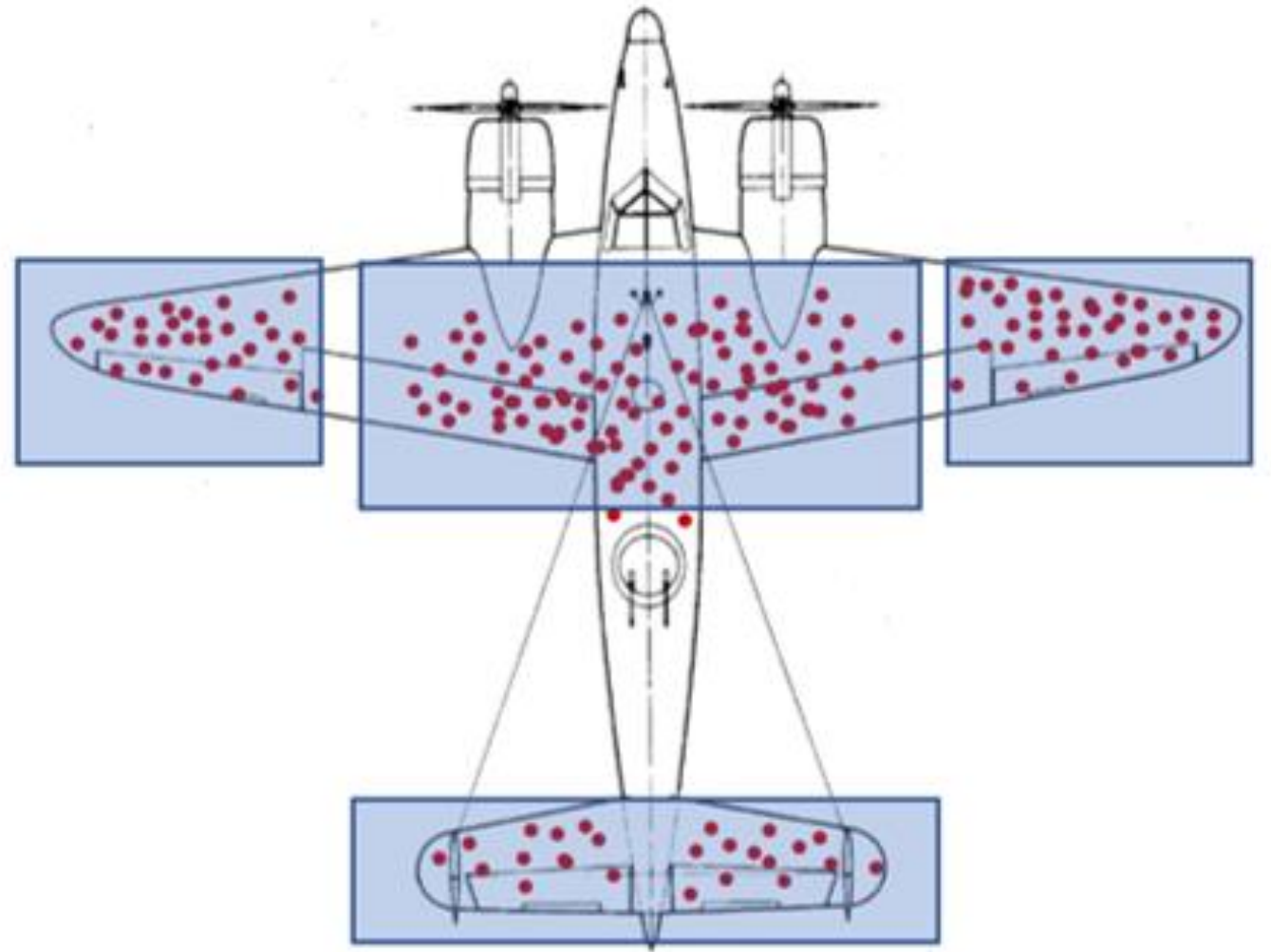
Survivorship Bias

Our data is only from returning flights. Visualization of the places that bullet holes were observed.

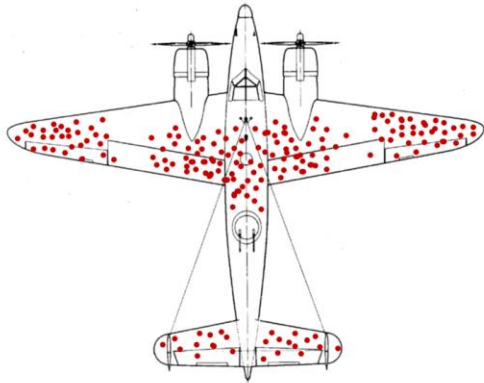


Survivorship Bias (Initial Guess, But Wrong!!)

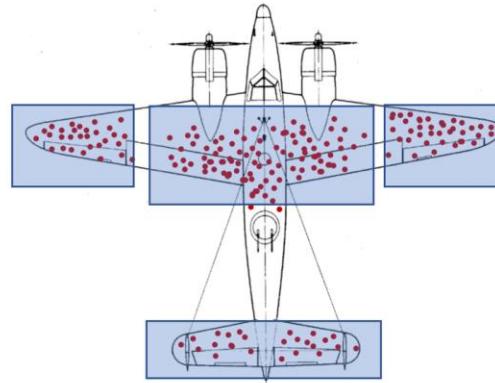
An initial Guess at
how to fix this
might be to apply
additional armor
plating to the parts
of plane with the
most holes



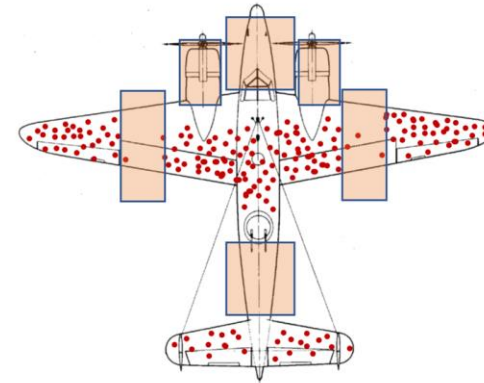
Survivorship Bias (The Right Answer)



Our data is only from returning flights. Here we have a visualization of the places that bullet holes were observed.



And initial guess at how to fix this might be to apply additional armor plating to the parts of the plane with the most holes...

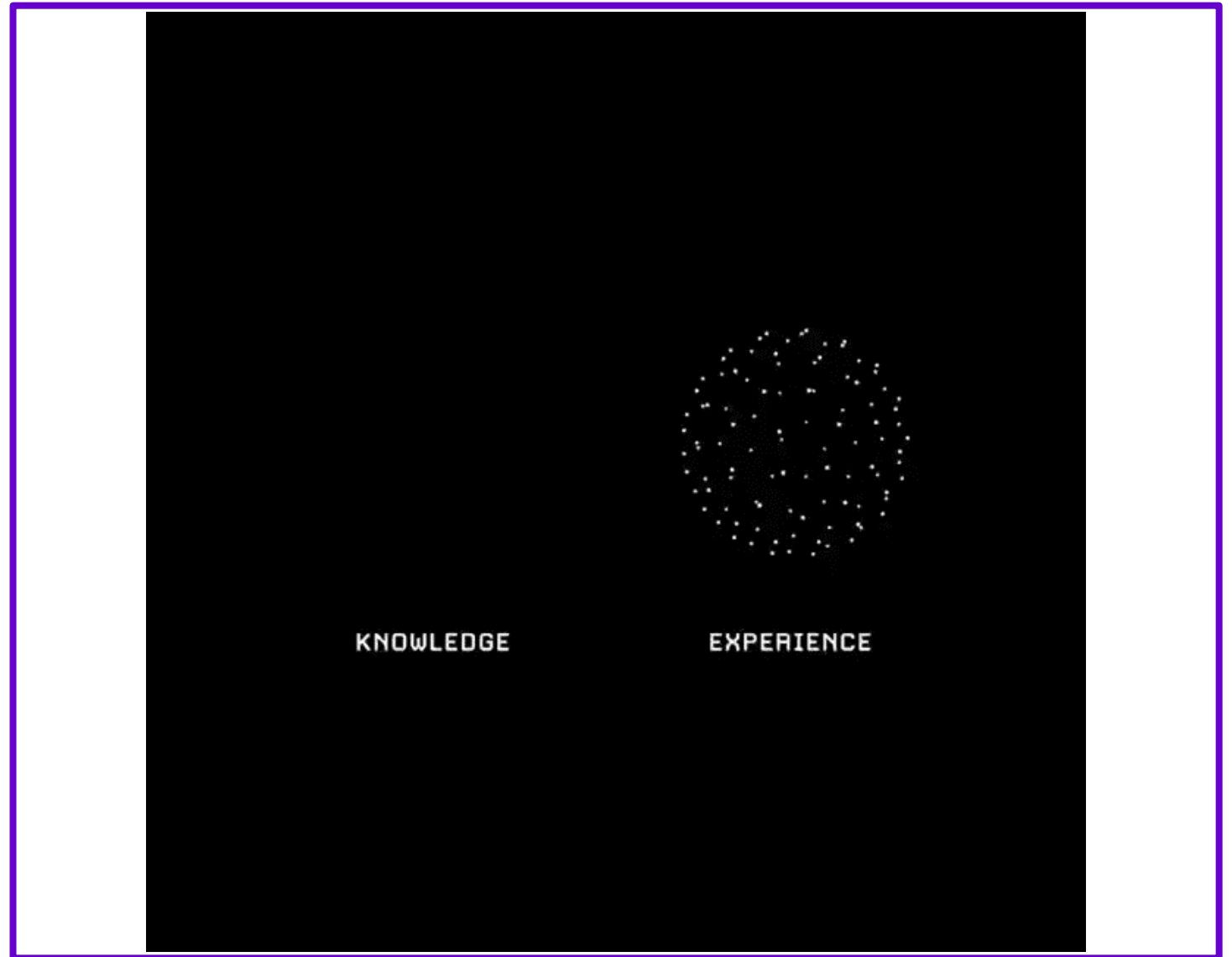


.... However this is where planes that *returned* had bullet holes. The planes we want to protect are the ones that did *not* return, so we should place armor there.

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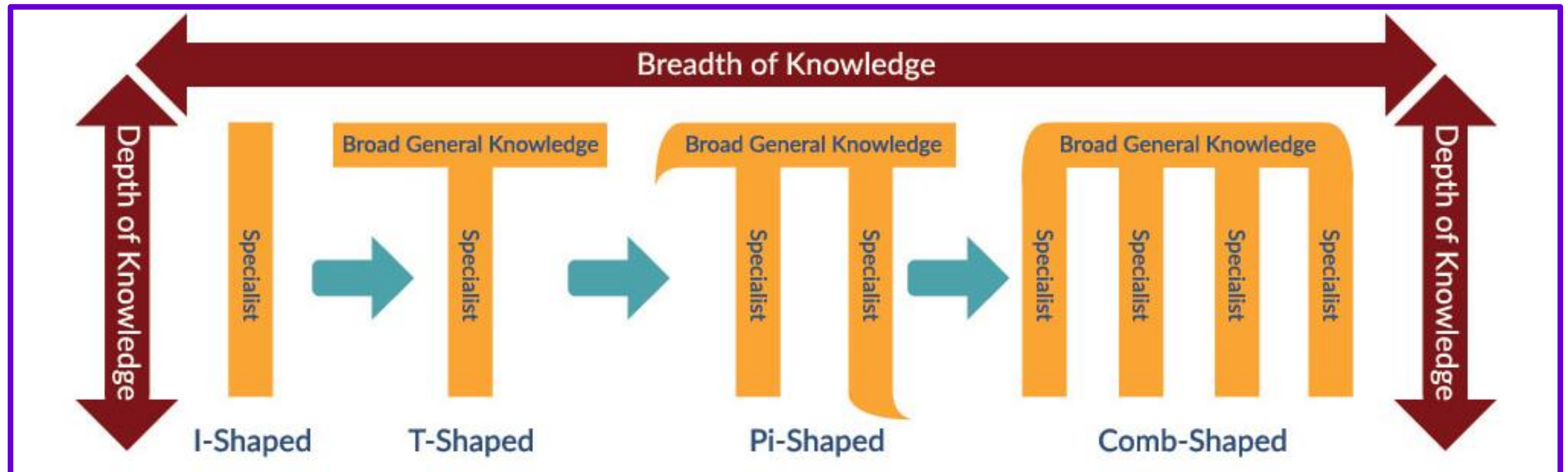
Your Portfolio (Knowledge vs Experiences)

Knowledge collects
the dots,
Experience
connects the dots.



Your Skill Set and It's Shape

Now days you should at least have a T-Shaped Skills Set



Soft Skills vs Hard Ones

Soft Skills shape
your mindset, Hard
Skills shape your
experience and
your knowledge



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Your Portfolio (LinkedIn.Com)

Online Resume
+
Networking
+
Job Opportunities
+
Learning



Your Portfolio (For Developers and Programmers)

You will be evaluated and judged by your not only by your knowledge (certificates) but also by your experiences you have



+



How to Write Our Resume

Market culture matters, But It's better to be one page, single column, without pictures and be a prove for your skills

1

123 Spruce St, Apt 35
Philadelphia PA 19103

2

GAYLE L. McDOWELL

3

(555) 555-1212
gayle@careercup.com

4

EMPLOYMENT

5

Software Engineer, InternApple ComputerSummer 2004
iChat AV

6

• Reduced time to render the user's buddy list by 75% by implementing prediction algorithm.
• Implemented iChat integration with OS X Spotlight Search by creating tool which extracts metadata from saved chat transcripts and provides metadata to a system-wide search database.
• Redesigned chat file format and implemented backwards compatibility for search.

7

Lead Student AmbassadorMicrosoft CorporationFall 2003 – Spring 2005
• Promoted to Lead Student Ambassador in Fall 2004; supervised 10 – 15 Student Ambassadors
• Created and taught Computer Science course, CSE 099: Software Design and Development

8

Head Teaching AssistantUniversity of PennsylvaniaFall 2001 – Spring 2005
• Courses: Advanced Java III, Software Engineering, Mathematical Foundations of Comp. Sci. I & II
• Promoted to Head TA in Fall 2004; led weekly meetings and supervised four other TAs

9

Software Design Engineer, InternMicrosoft CorporationSummers 2001 - 2003
Visual Studio Core (Summer 2003)
• Implemented a user interface for the VS open file switcher (ctrl-tab) and extended it to tool windows.
• Created service to provide gradient across VS and VS add-ins. Optimized service via caching.
Programmer Productivity Research Center (Summers 2001, 2002)
• Built app to compute similarity of all methods in a code base; reduced time from $O(n^2)$ to $O(n \log n)$.
• Created test case generation tool which creates random XML docs from XML Schema

10

EDUCATION

11

Philadelphia, PAUniversity of PennsylvaniaFall 2000 – May 2005
• M.S.E. in Computer and Information Science, May 2005. GPA: 3.6
• B.S.E. in Computer Science Engineering with Minor in Mathematics, May 2005. In-major GPA: 3.4
• Graduate Coursework: Software Foundations; Computer Architecture; Algorithms; Artificial Intelligence; Comparison of Learning Algorithms; Computational Theory
• Undergraduate Coursework: Operating Systems; Databases; Algorithms; Programming Languages; Comp. Architecture; Engineering Entrepreneurship; Calculus III

12

TECHNICAL EXPERIENCE

13

Projects

14

• Multi-User Drawing Tool (2004). Electronic classroom where multiple users can view and simultaneously draw on a "chalkboard" with each person's edits synchronized. C++, MFC
• Synchronized Calendar (2003 – 2004). Desktop calendar with globally shared and synchronized calendars, allowing users to schedule meetings with other users. C#.NET, SQL, XML.
• Operating System (2002). UNIX-style OS with scheduler, file system, text editor and calculator. C

15

ADDITIONAL EXPERIENCE AND AWARDS

16

• Instructor (2003 – 2005): Taught two full-credit Computer Science courses; average ratings of 4.8 out of 5.0.
• Third Prize, Senior Design Projects: Awarded 3rd prize for Synchronized Calendar project, out of 100 projects.

17

Languages and Technologies

18

• C++; C; Java; Objective-C; C#.NET; SQL; JavaScript; XSLT; XML (XSD) Schema
• Visual Studio; Microsoft SQL Server; Eclipse; XCode; Interface Builder

19

careercup.com

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- 2 Soft Skills vs Hard Skills
- 3 Portfolio & Resume
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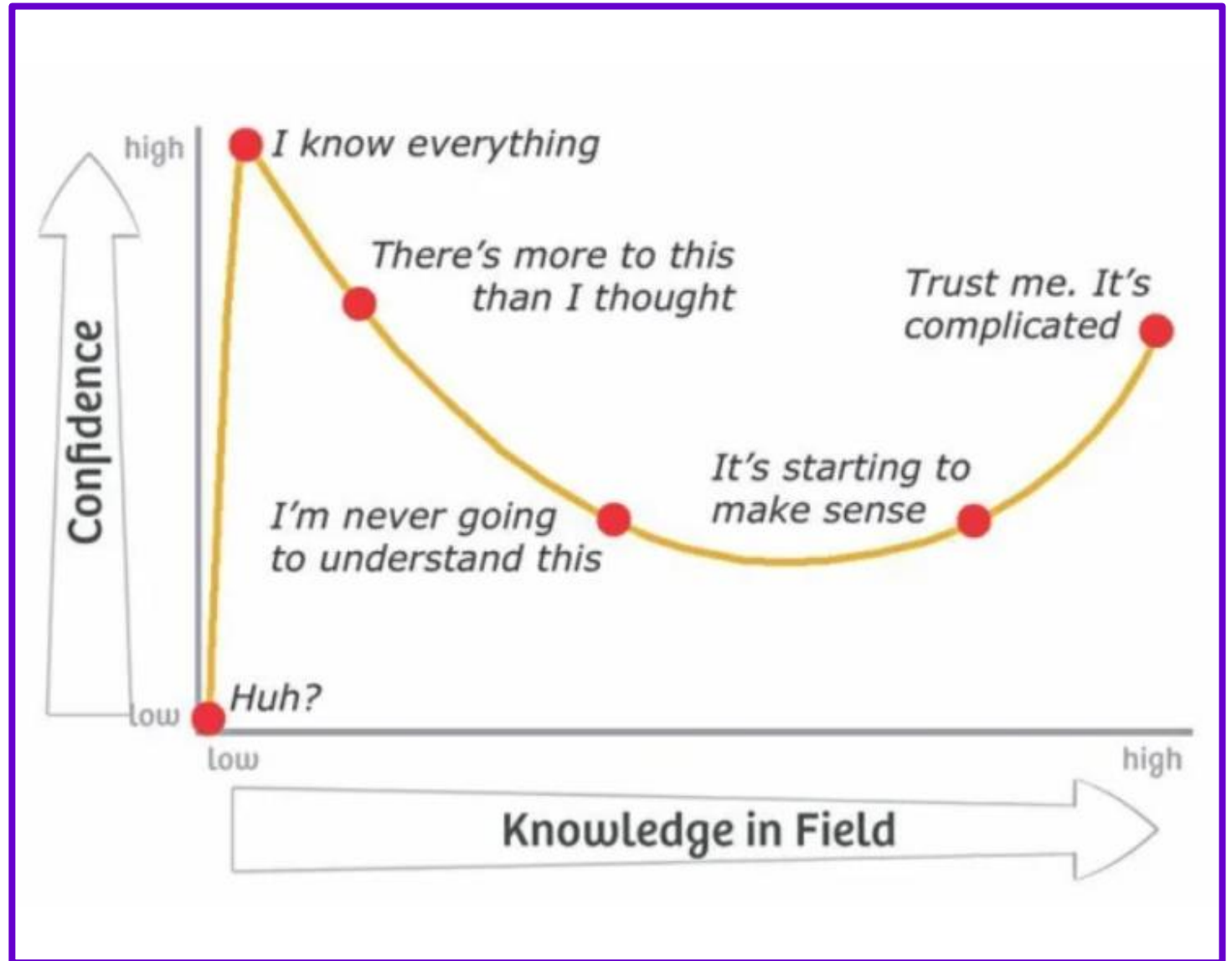
Growth Mindset and Attitude

“Humankind is facing unprecedented revolutions, all our old stories are crumbling, and no new story has so far emerged to replace them. How can we prepare ourselves and our children for a world of such unprecedented transformations and radical uncertainties?.”

Yuval Noah Harari

Your Confidence vs Your Knowledge

Dunning-Kruger Effect, a path to seniority

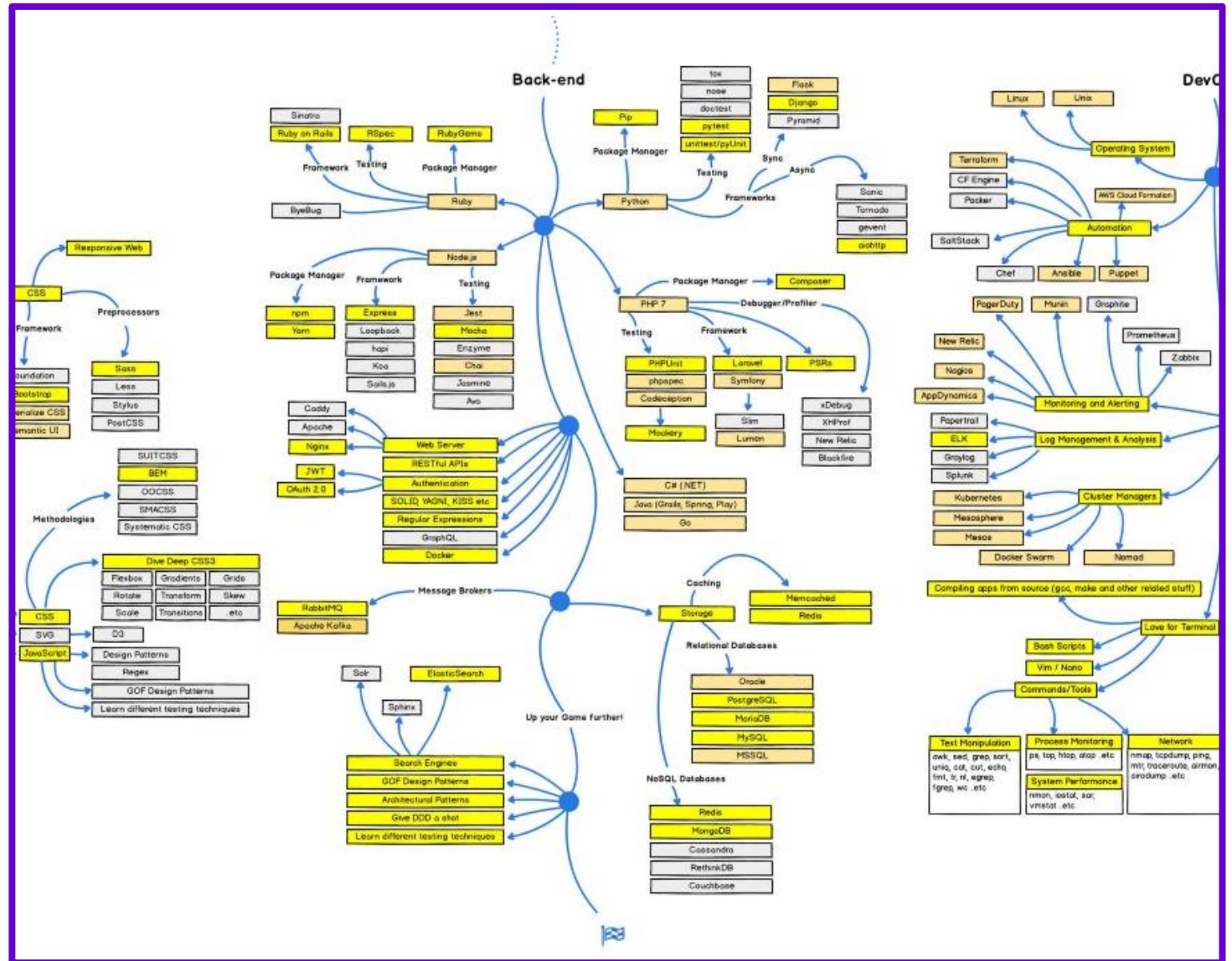


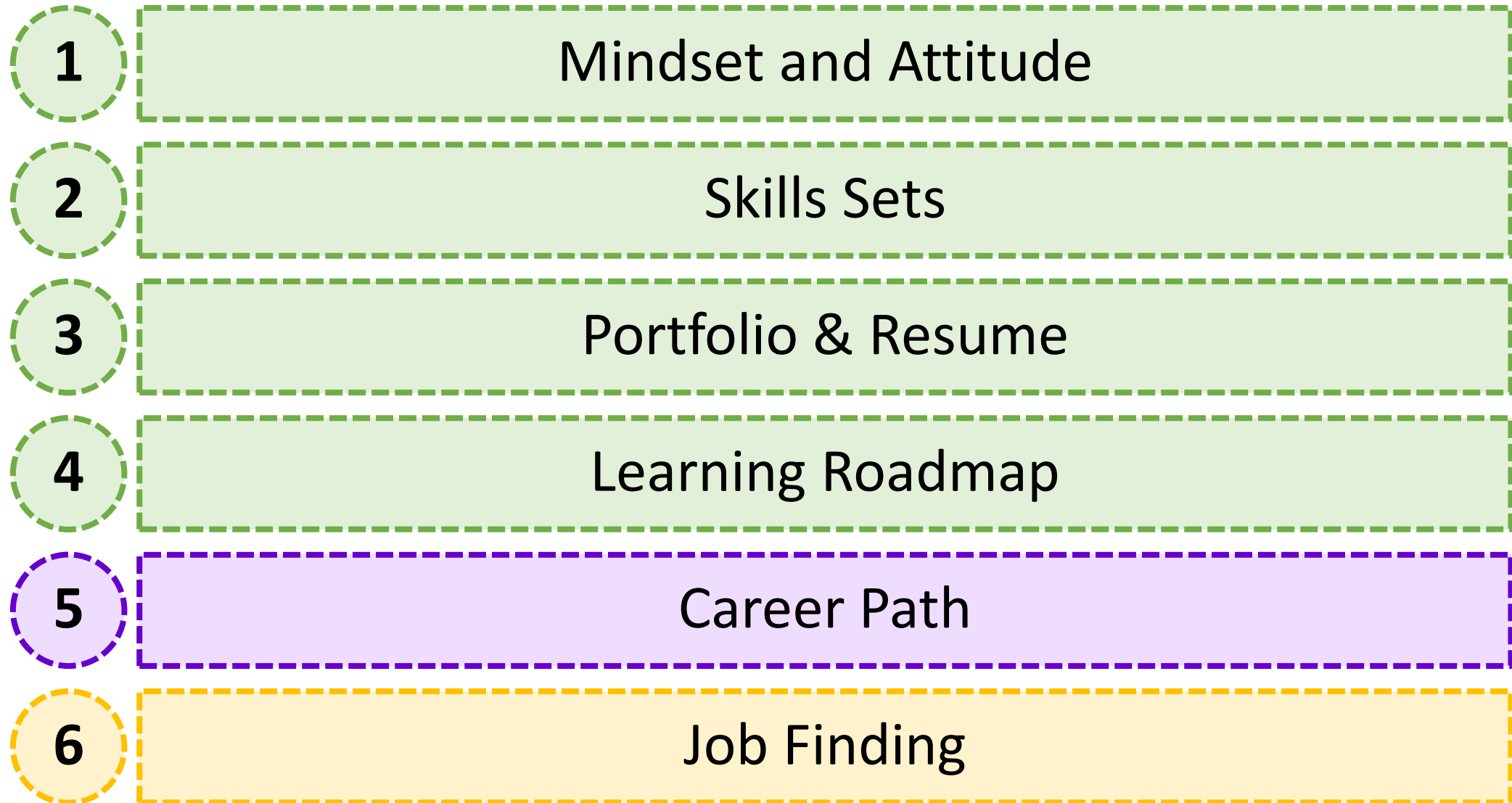
How we should know
what we should know?!
(the next step?!)

1. Get a Mentor

2. Get a Course

3. Use predefined roadmaps





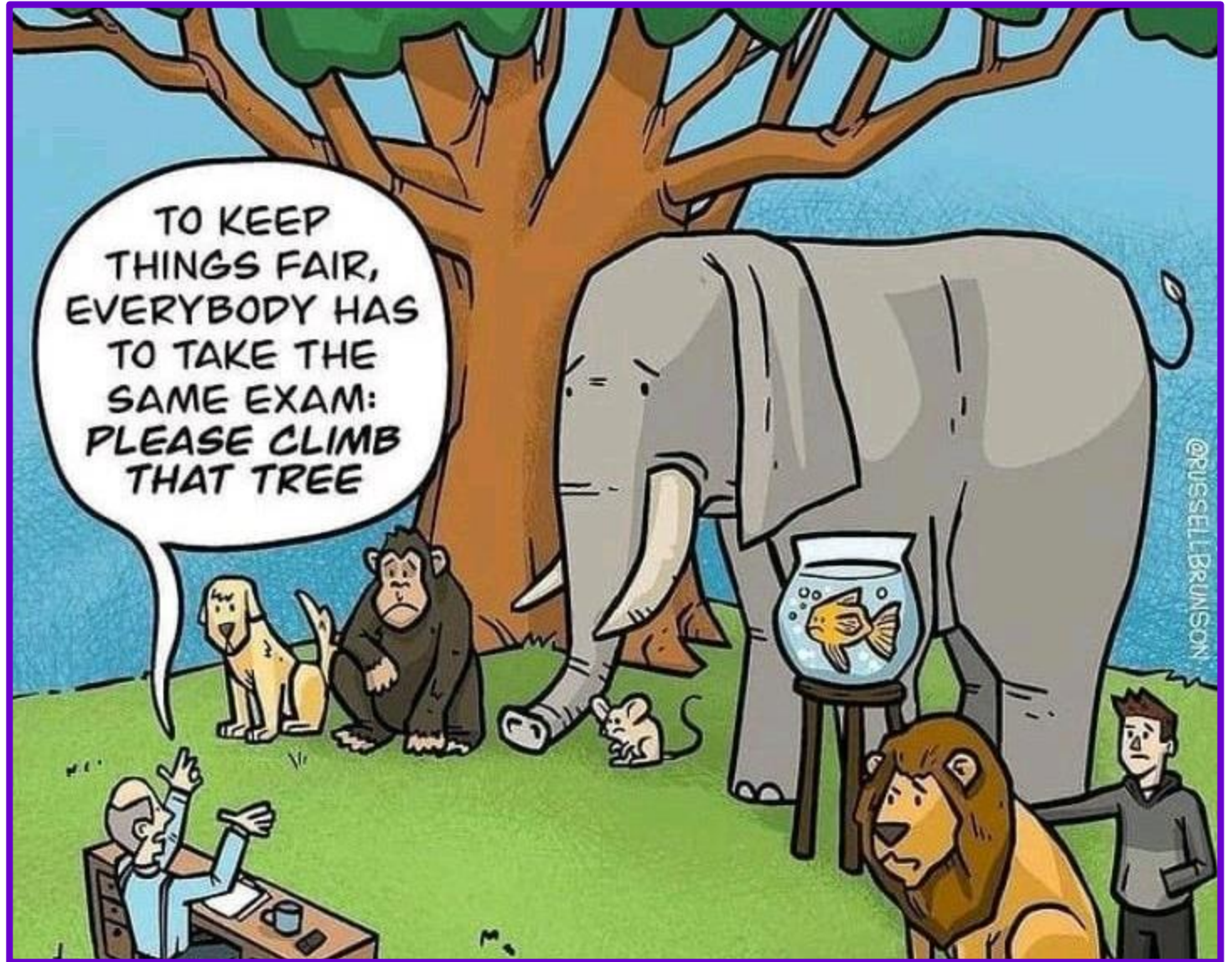
Growth Mindset and Attitude

*“The biggest mistake that you can make is to believe that you are working for somebody else. Job security is gone. **The driving force of a career must come from the individual.** Remember: Jobs are owned by the company, you own your career!”*

Earl Nightingale

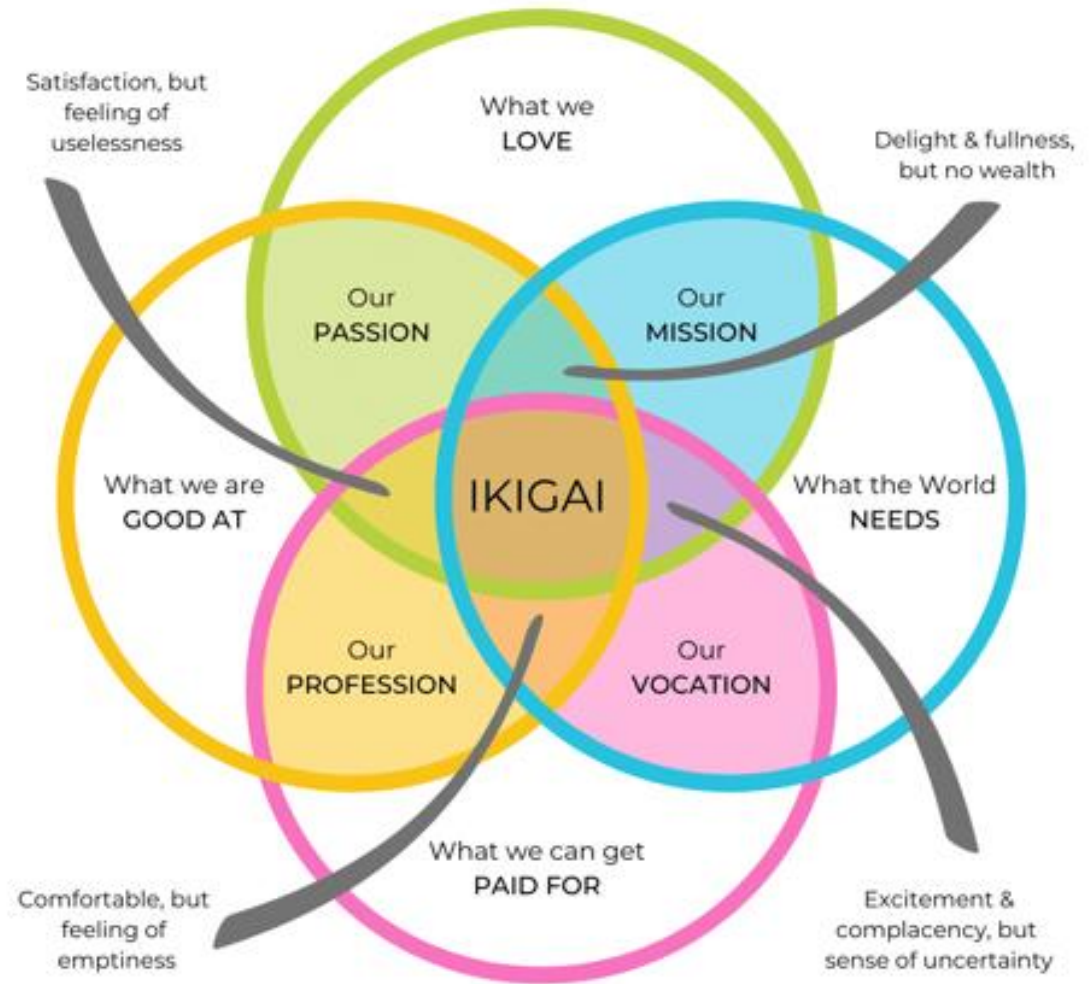
Your Personality Matters

You should know your self



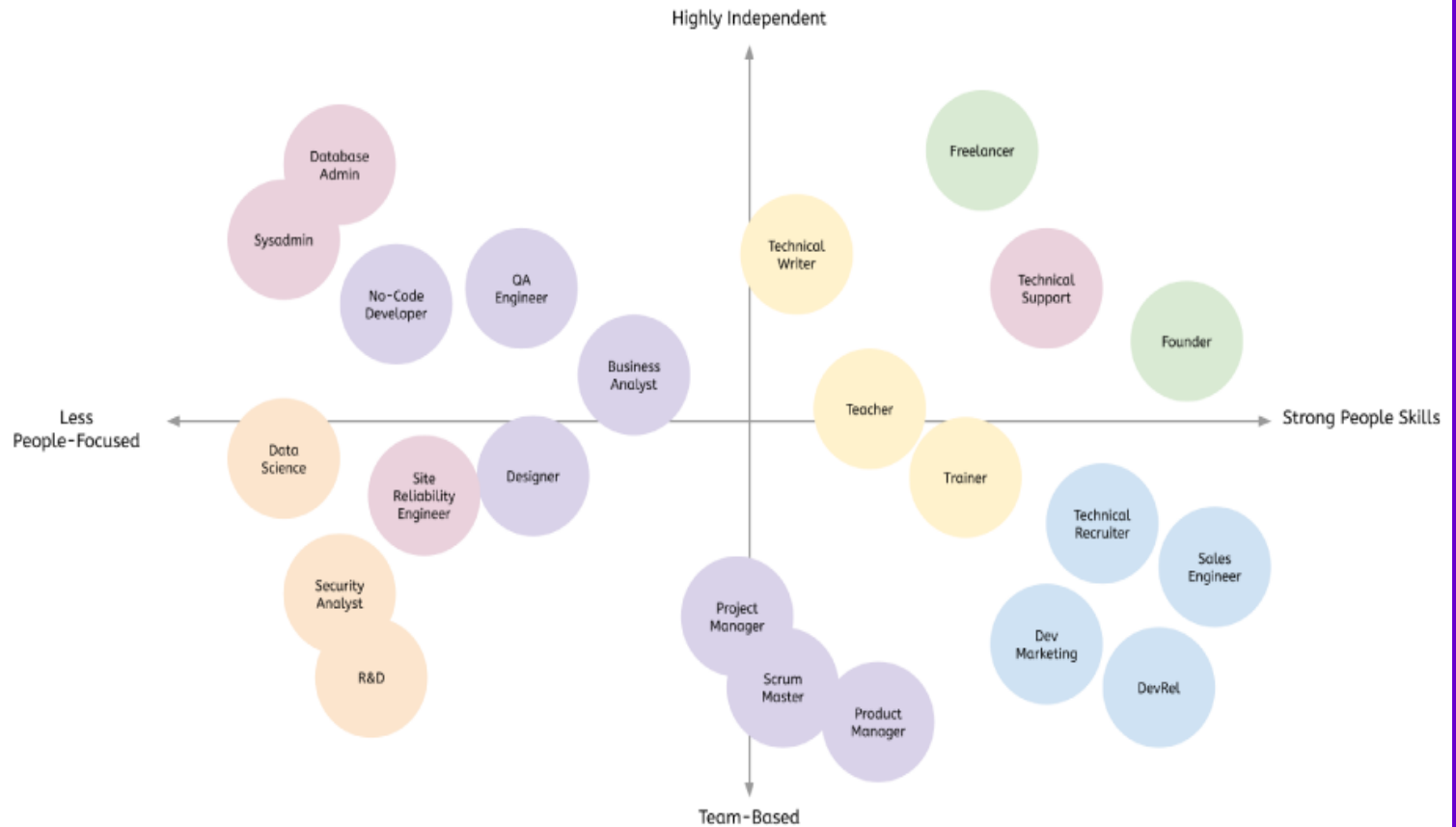
Your Personality Matters

You should know your self



How to choose our field
(Your Personality
matters)

Independency Type And Skills Type

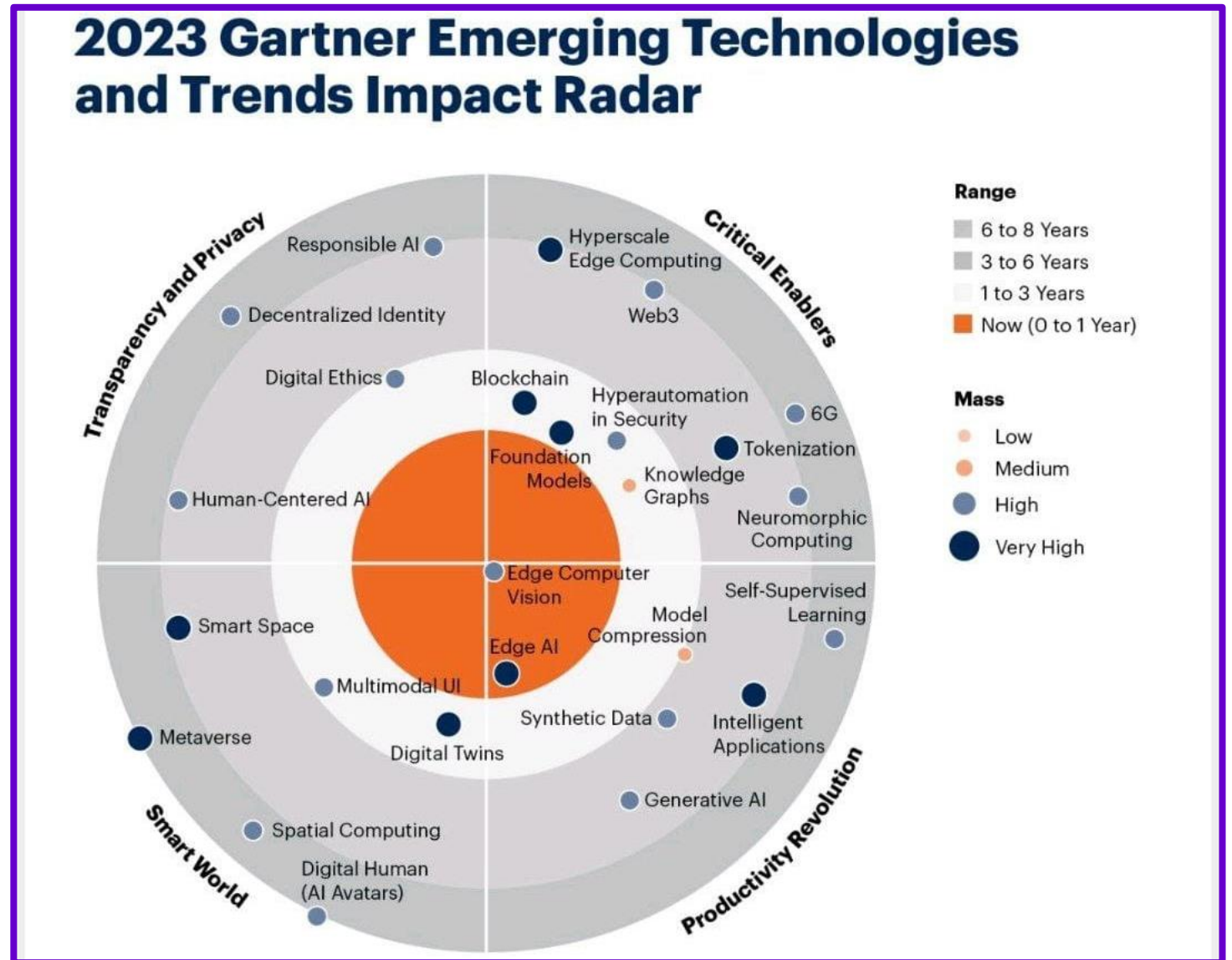


Source: <https://www.freecodecamp.org/news/alternative-career-paths/>

Valuable Knowledge,
Market Needs and
Trends

How we should know
what we should
know(learn)!?
(to be successful)

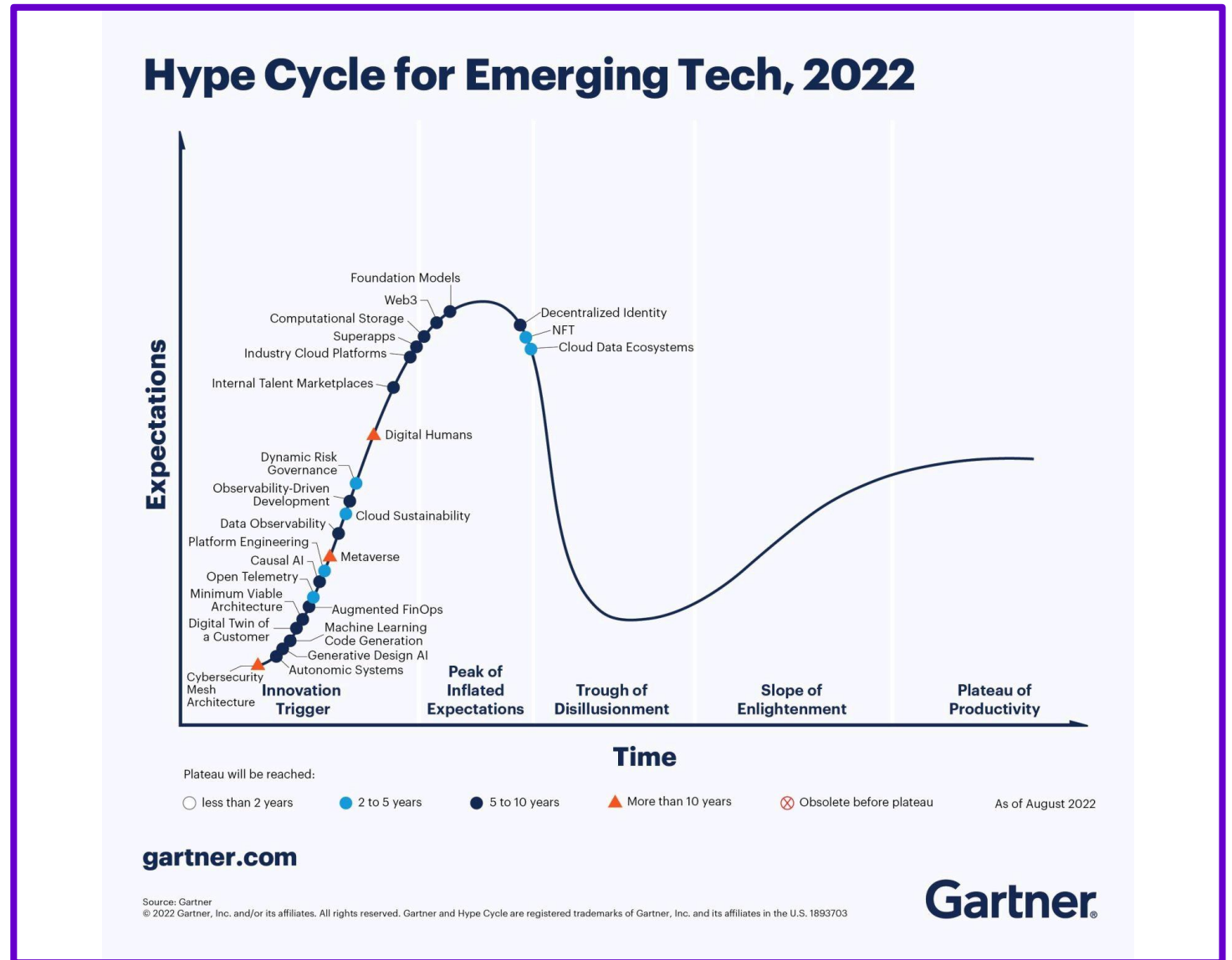
Job market and ads
will guide you! But
you should prepare
for the future!



Valuable Knowledge, Market Needs and Trends

How we should know
what we should
know(learn)!?
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Job market and ads
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How get a job without any Experience?

You could (should) make your own experience
(don't wait to someone prepare the situations for you)

Apply for free or paid Internship

Contribute to open-source projects on GitHub

Work on your own project and published it

Collaborate on Stack overflow or online judge platforms

Course References

- J. Harper, *A Software Engineer's Guide to Seniority: A Guide to Technical Leadership*. Apress, 2022.
- F. Doglio, *Skills of a Successful Software Engineer*. Manning, 2022.
- F. Sazanavets, *The easiest way to become a software developer, How to get your first programming job, even if you are a self-taught coder*. 2023.
- D. Moore, *Letters to a New Developer: What I Wish I Had Known When Starting My Development Career*. Apress 2020.
- D. Heller, *Building a Career in Software: A Comprehensive Guide to Success in the Software Industry*. Apress, 2020.
- S. S. Wang, *The Coding Career Handbook: Guides, Principles, Strategies, and Tactics –from Code Newbie to Senior Dev*. 2022.

Accessing Course Resource



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t.me/SamaniGroup



github.com/Samanipour