



**Scientists with Great Careers  
identified and worked  
on the Right Problem (Passion)  
in the Right Way (Talent) and  
in the Right Place and Time  
(Engaging Environment)**

# Passion

**Every person I have ever known with a great career is passionate about what they are doing.**

What are you deeply passionate about?

Do you want to make the world a better place, understand mathematics, physics, or biology, teach others, create beauty, ...

What are you doing when you are so happy that your smile is pushing your ears back and your heart sings?

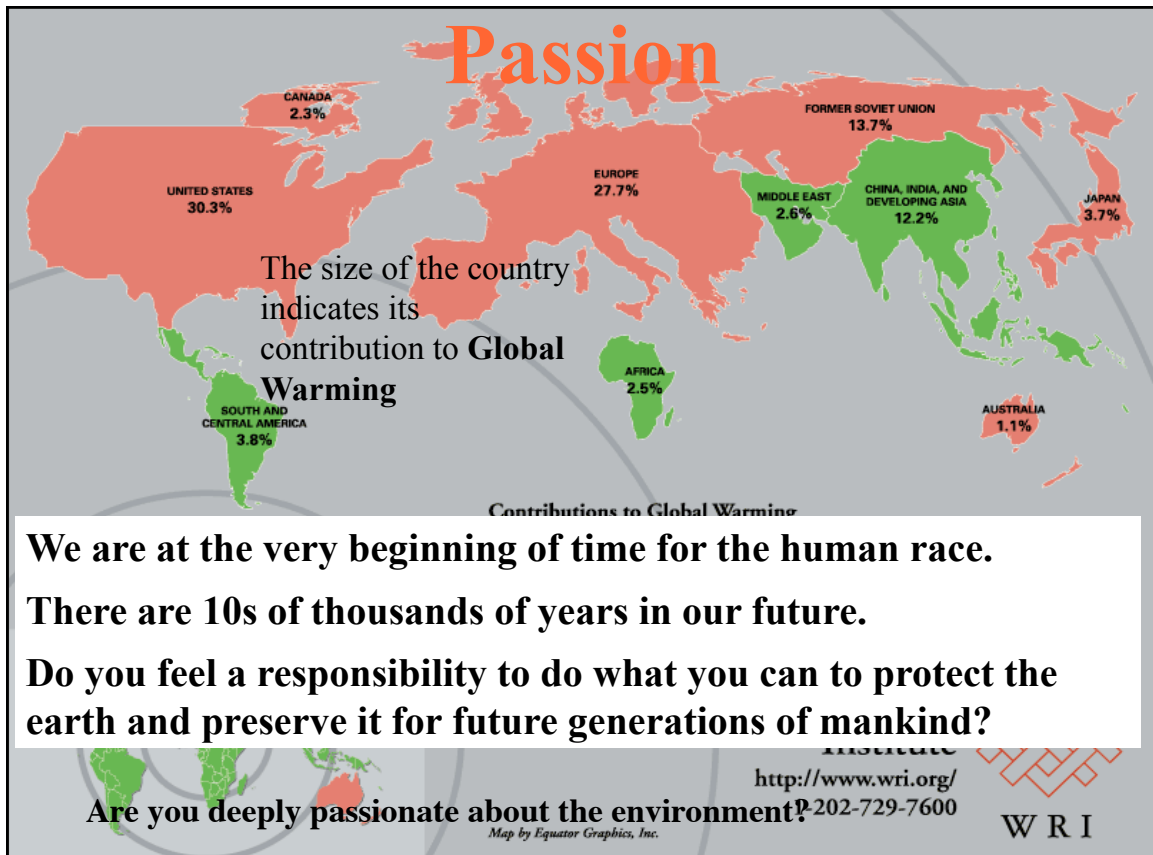
If you could do anything for the next ten years, what would it be?

Deep emotional commitment is necessary for great success.

**You need more than raw talent to have a great career, you must have passion for what you are doing.**







# Passion

**Are you deeply passionate about healthcare or medicine?**



# Passion

This news story changed my life.



## The Gay Epidemic

16 December 1982 • New Scientist News • Richard Fisher

Between spring 1981 and August 1982, physicians in the US diagnosed 500 Americans with "acquired immunodeficiency syndrome" (AIDS).

At least 175 of these people have since died. Of those who had developed AIDS in 1980, 70 per cent are now dead. Two cases were reported in England in 1982 and both died. Six similar instances occurred in Denmark. Two died and two are still in hospital. ....

Are you deeply passionate about healthcare or medicine?



# Passion

**Passion isn't dictated, it's discovered.**

Are you deeply passionate about preserving natural resources?



# Passion



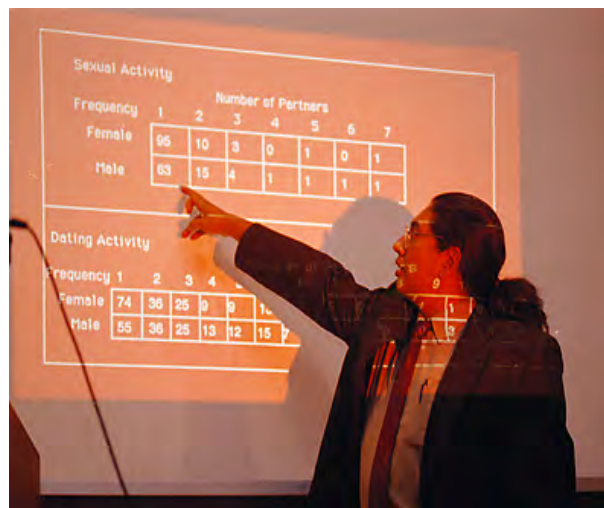
Are you deeply passionate about understanding the universe?

**Passion isn't dictated, it's discovered.**

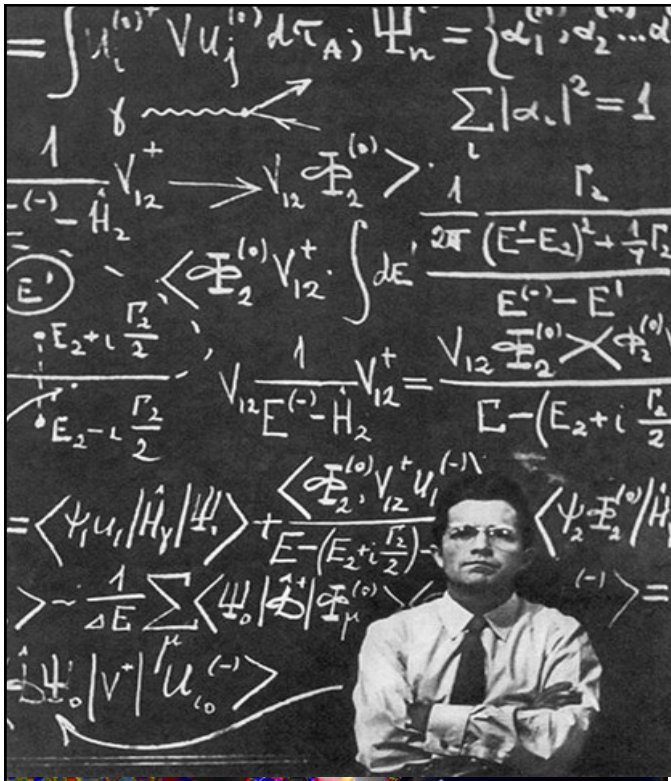


Do you have a  
passion  
for writing?

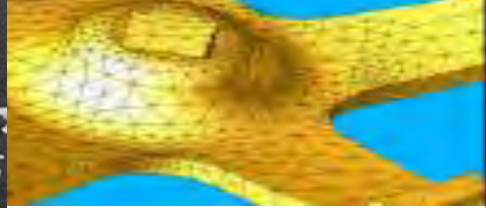
# Passion



Are you deeply passionate  
about teaching?



Passion



Are you deeply passionate about mathematics,  
the search for beauty, or the joy of discovery?

Passion

COSMOLOGY MARCHES ON



Scientists are driven to  
**understand, understand, understand.**

# Passion

People with great careers follow their passion everywhere.

**Give yourself permission to follow your heart.**

It would be crazy not to follow your heart and spend part of every day engaged in something you are passionate about.

Stretch yourself: take courses, read books, watch videos, listen to audio books, and seek out people to share your love.

If you ask people with great careers why they work so hard, they look at you like your asking a dumb question. *“Why wouldn’t you want to know everything about what you are passionate about?”*

**Identify your passion and follow your heart. Just do it!**

**Why wouldn’t you  
want to become the  
best in the world  
about something you  
are most passionate  
about?**

**rest of your life?**

**Give yourself permission to become  
the world’s expert in your passion  
If you pursue goals that move you,  
then you cannot squander your life.**

**Your happiness is under your control.**

## Science

*Understanding*

*Understanding*

Mathematics

Physics

Biology

Chemistry

Geosciences

Saving lives

Fight Hunger and Poverty

Intrinsic Beauty of Nature

Medicine

Fundamental Truth, theorems

Environment

Renewable energy

Water Resource management

Weather, climate

Music, Art, Writing

Computers

.....

# Strength based on Talent

A Great Career will be almost impossible if you aren't passionate about what you do, but **passion alone is not enough.**

Great Careers are build on a person's strengths, and **strengths can be great only if they are build on a talent.**

A talent is a recurring trait that you do naturally.

We all are talented. Our talent might express itself as a knack for solving puzzles, computer coding, remembering names, identifying hidden patterns, lateral thinking, or in other everyday activities.

**Your talent is the foundation for your strength.**

Is there something that you seem to do effortlessly that other struggle with? If so, then chances this is one of your talents.

# Strength based on Talent





# Strength based on Talent



**Tiger Woods, Jay Leno, and Bill Gates seem to be blessed with rare and special talents.**

**Others may know the same facts and have the same expertise but never have a great of a career.**

**They have great careers because they built their talent into a strength**

**A Talent becomes a **Strength** through Knowledge, Skills, and Expertise**

**First identify a strength that benefits from your talent**

**Talent without strength**

**does not lead to a great career**

**Strength without talent**

**does not lead to a great career**

**Strength built upon talent**

**can lead to a great career**

**Strength =**  
**Talent + Skill + Knowledge + Expertise**

**Talent is a recurring natural trait.**

People don't change that much.

Don't waste time trying to put in what was left out.

Try to draw out what put in.

That is hard enough.

**Talents** become **Strengths**  
through **Knowledge**, **Skills**, and **Expertise**

Stop trying to fix your all your weaknesses.

You can become competent,

but not great unless you build your career based on your talents.

Your **Talent** is like a Balloon.  
Your **Skills**, **Knowledge**, and **Expertise** are fuel.



Identify any anchors that hold back your talent. These can be a lack of skill or knowledge outside your passion, such as communication skills, writing or speaking ability, or even just explaining your ideas.

## Strength = Talent + Skill + Knowledge + Expertise - Anchors

Nontalents can be **anchors** that can hold down your career

- **Mitigate** the anchor by using a crutch or other means to get you by.
- **Partner** with another person who's strengths are your nontalents.
- **Acquire** knowledge, skills, and expertise to get by so that your nontalents are not anchors that you back.

**Understanding what you DO NOT HAVE is just as important as knowing your talents.**

## Talent is not enough



We all have nontalents. There are 3 ways to mitigate these anchors:

1. **Mitigate:** use a crutch or other aid
2. **Partner** with someone who has a strength to fill the gap
3. **Acquire** the skills so your lack of talent doesn't hold you back



# Talent



**Bill Gates**

**Paul Allen**

Microsoft Corporation, 1978

# Talent



**“The Tiger mystique factor is gone:** Eight majors have come and gone since Tiger Woods last won one. In fact, he's not even the bookies' favorite pick this week at the 133rd Open Championship.”

Associated Press Tim Dahlberg, July 15, 2004

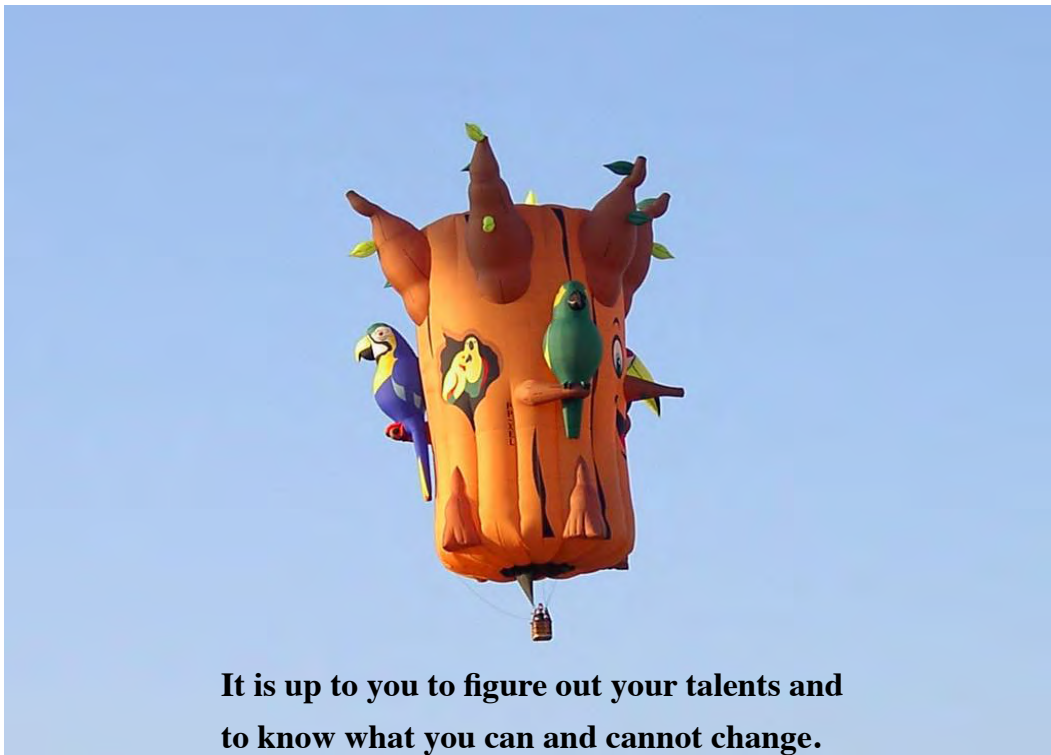
# Talent



When you identify an anchor holding back your talent, you can fix it or work with someone who's strength is your weakness.



**Everyone's talents are different.**



**It is up to you to figure out your talents and  
to know what you can and cannot change.**





**Become more and more of who you already are,  
build on your strengths, and mitigate your anchors**

**Strength = Talent + Knowledge + Skills +  
Expertise - Anchors**

Greatness requires you **base your career on your strength**, and that your **strengths create a foundation of your talents**.

Focus on, develop, and nurture your talent into a strength. **Don't try and put in what was left out; strengthen what was put in.**

The remarkable thing is that people with great careers have just as many limitations as the rest of us do, but they don't let their nontalents hold them back.

**Mitigate, partner, or acquire** the skills to keep nontalents from being an anchor holding you back.

Talents include:

Connecting abstract models  
with physical systems  
Computer programming  
Communication  
Problem solving  
Lateral thinking  
Seeing hidden patterns  
Organizing ideas  
Striving through difficult times  
Synthesizing diverse facts  
Working with people  
Energizing team members  
Focusing in difficult situations  
Empathy  
Strategic thinking  
Organizing Complex Systems

If you don't think that have  
enough **talent to create a  
great strength**, then you  
haven't found your talent.

**Strengths create the foundation  
for you talent to support  
a great career**

Nontalents (anchors) for Scientists: communication skills, time management

A dynamic wallpaper featuring Michael Jordan in his iconic white Chicago Bulls jersey, captured mid-air during a jump shot. The background is a dark, textured collage with red and white highlights. Overlaid text includes 'Talent' in large orange letters, 'Michael Jordan was talented in both basketball and mathematics' in white, and a quote at the bottom: 'A talent will not be a strength unless it is applied in a situation you are passionate about.' The wallpaper also features 'WCREMIX.CJB.NET WALLPAPERS' in the top right and 'CREDITS: NBA...ARTWORK © PROPERTY OF SALMAN JAFRI...SLMN009@HOTMAIL.COM...FOR MORE WALLPAPERS GO TO WCREMIX.CJB.NET' at the bottom.

**Talent**

Michael Jordan was  
talented in both basketball  
and mathematics

A talent will not be a strength  
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WALLPAPERS

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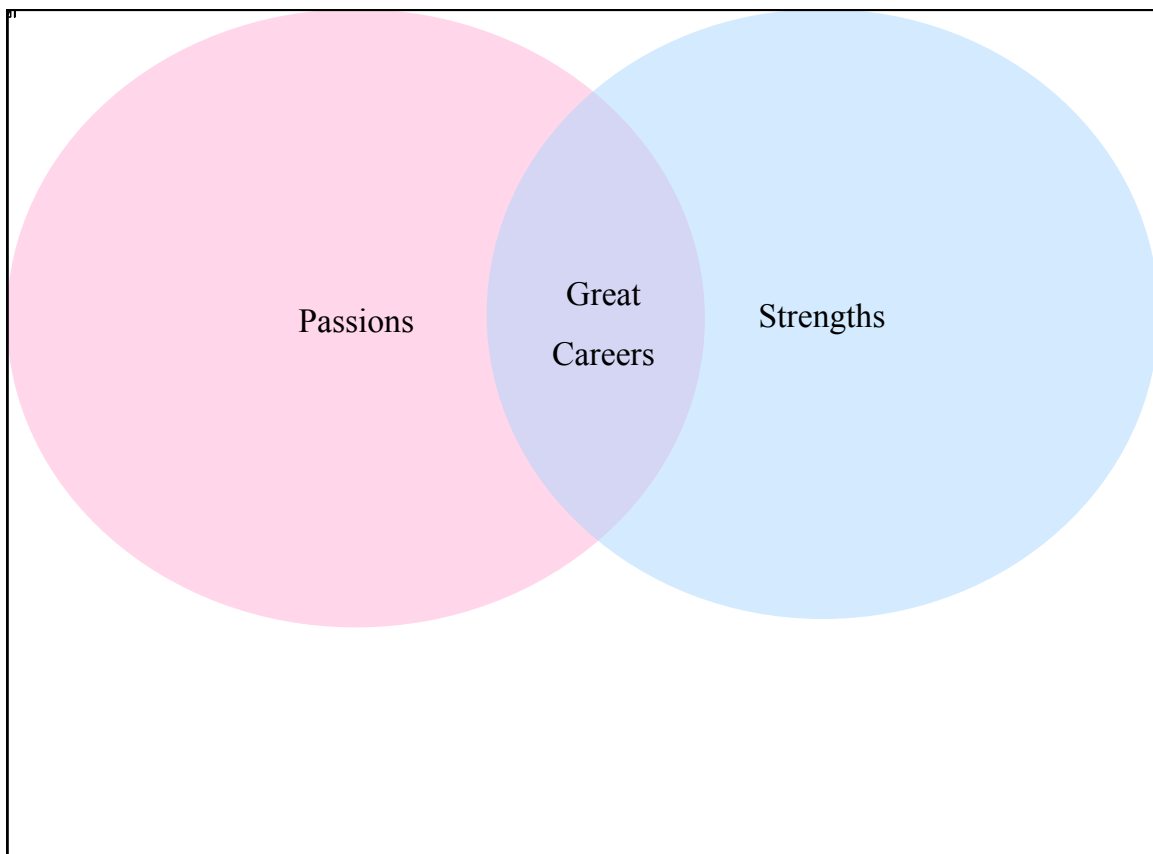
# Talent

$$\delta \int dS = - \int H \delta \vec{x} \cdot \vec{n} dS$$
$$\nabla \cdot \vec{n} = -H$$

**MICHAEL JORDAN**  
[mj23]

**A talent will not be a strength unless it is applied in a situation you are passionate about.**

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# Engaging Environment

The **Right People** are your greatest asset in shaping your career.

The right people will succeed in whatever they do.

(although you might not be able to predict what they will succeed at ahead of time.)

The wrong people will never succeed, no matter what they do.

**First Who...Then What** in picking classes, schools, and jobs.

**First** identify an environment where others will support your passions and talents, **then** join them to decide on what to do.

**First Who (the right people) ...**

**Then What (which job or class to take)**



Character is more important than expertise or reputation.

**Sir Isaac Newton would have discovered gravity years earlier had he not worked in the same place as William Tell.**

Working with the right people will be your most important asset.

Count on missed opportunities if you work around the wrong people

# Engaging Environment

The right places set their students and colleagues up for success by establishing a culture of discipline built around commitments to core values, with freedom and an ethic of entrepreneurship about how to meet those promises.

**Strive to work in a Culture of Discipline** with a rigorous, but not ruthless, culture where people share your work ethic and desires.

**Seek out clock builders, not time tellers** who never stop trying to become qualified for the job.

Even clock builders must work in the right environment to be successful

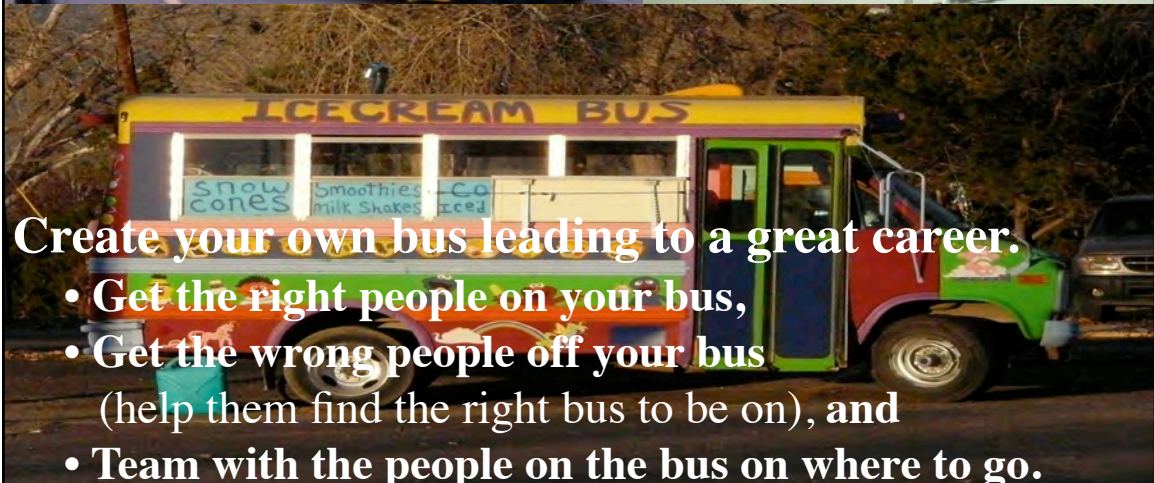
**A genius at building sundials  
will not receive recognition  
by working in the shade.**





**Create your own bus leading to a great career.**

- **Get the right people on your bus,**
- **Get the wrong people off your bus**  
(help them find the right bus to be on), **and**
- **Team with the people on the bus on where to go.**



**Create your own bus leading to a great career.**

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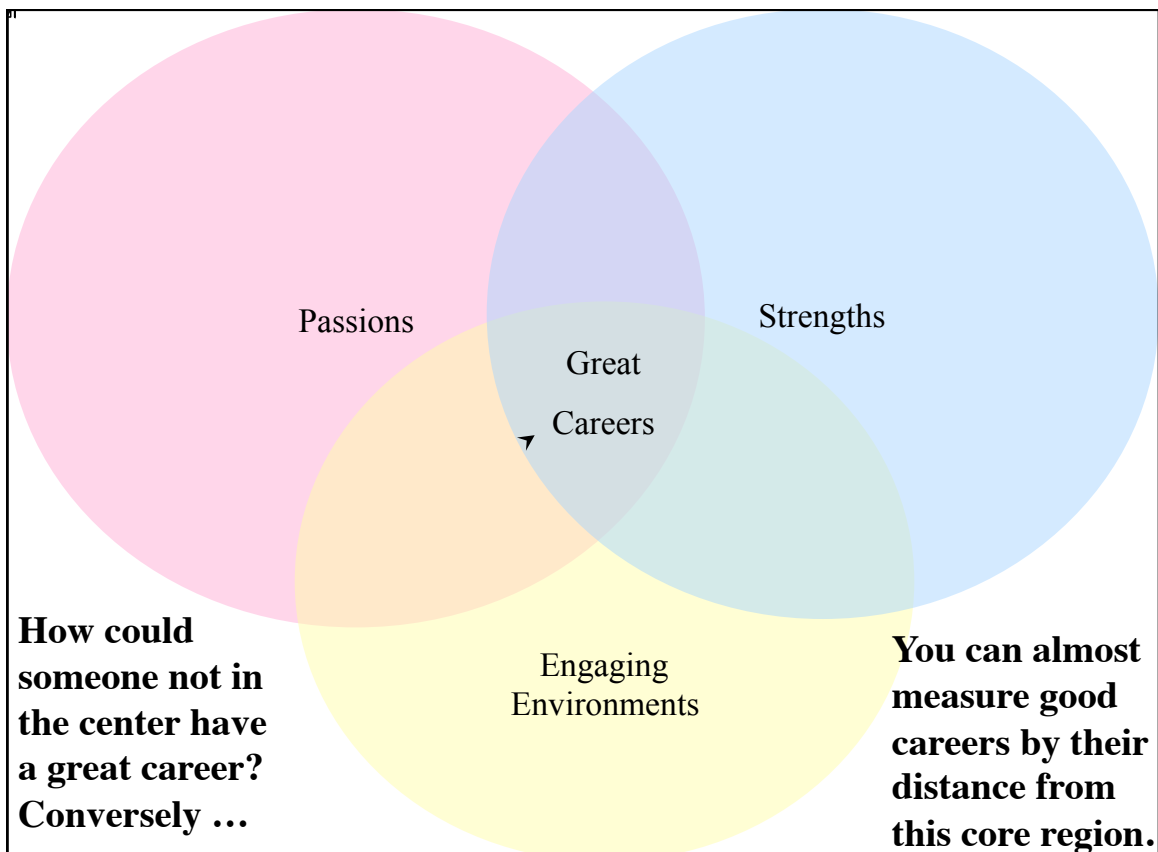


Seek out a **culture of discipline** built around commitments to **core values**, with freedom about how to meet those promises;

Find a **support group of clock builders**, not time tellers.

Be a team player and **work with the RIGHT people**

- Talk with the professors AND their students
- Search on the Web
- Use the society info pages - AMS, SIAM, MAA
- Track down authors of papers you find interesting
- Visit the departments (is there a culture of discipline?)



## The Central Core Flywheel

Imagine your career in the central core of the three circles (**passion, talent, environment**) as a huge giant heavy flywheel.

Great careers are created by relentlessly pushing turn, upon turn, upon turn, moving it in the same direction, slowly building momentum, until breakthrough and beyond

The flywheel is a guide to help in making hard choices.

Your **passion** gives you the energy and desire to persevere.

Your **strength** comes from your **talent** supported through knowledge, skills, and expertise.

Your **environment** provides your support group.

## Setting Goals in Your Central Core

Reality: “**You can’t always get what you want.**” Mr. Jimmy  
“**But if you try sometimes well you just might find, you get what you need**” Mick Jagger

Set your goals: A great career is defined by your **passion, strengths** (as determined by your talents), working in an **engaging environment**, and your career choices are guided by your values.

The central core flywheel analogy can help guide your choices. Paths are unique to the individual, you must find you own way.

A great career is not defined by your salary. Making a living is essential, but not the central point of a great career.

**Still ... you do need to make a living.**

## **The Job Market: Academia, Laboratories, and Industry**

It is a wonderful goal to follow your passion, do what you are talented at, and work in an engaging environment.

In finding our path to a great career, we have to also recognize that we are human beings with human needs.

It is hard to be truly happy without

- having a secure, well-paid job,
- accomplishing your goals,
- seeing your family,
- having free time to enjoy life.

## **The Job Market: Academia, Laboratories, and Industry**

**Academia:** Natural to adopt role models of the people you encounter in your formative years. Tenure has security, minimal requirements (teaching), guaranteed paycheck. Down sides: the nine month salary, and it can be difficult to balance teaching and students, funding, management.

**Laboratories and Industry:** Job security is based on the recognition of your peers. Simple job description: scientific leadership, produce interesting results important to your employer, and make yourself useful.

Laboratories and Industry are managed environments:

Management suggestions aren't always bad. Michelangelo was asked by the pope to paint the Sistine Chapel. He didn't write a proposal to the 'Arts council of Rome.' **Application driven research can drive basic research.**



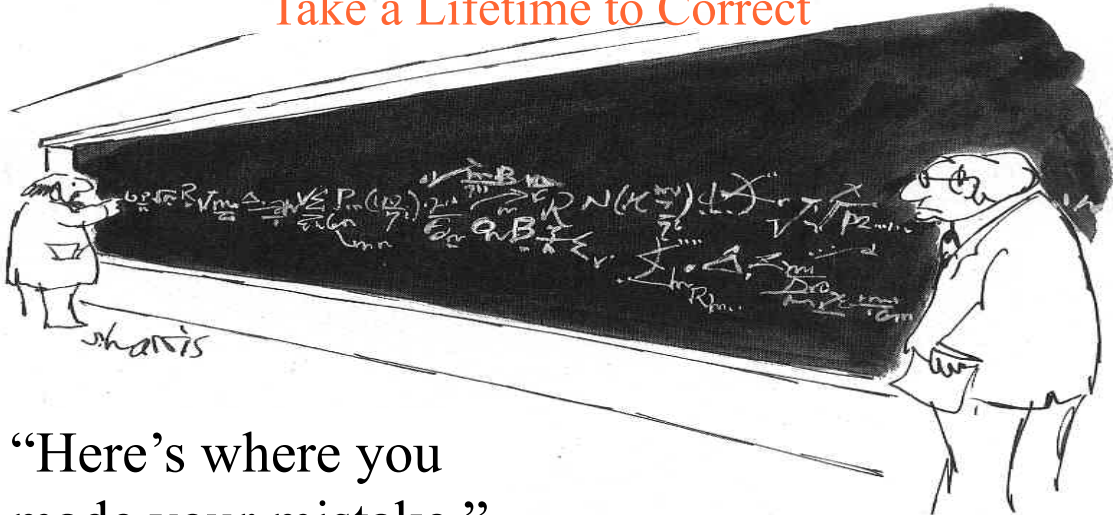
## Flexibility and Focus

You will make thousands of decisions during your career.  
The best decisions create branches to a great career and life.



The more options you leave open early in your career, the more options you will have later to reach the highest levels.

## A Mistake Early in Your Career Can Take a Lifetime to Correct



“Here’s where you  
made your mistake.”

A mistake at the beginning of a career can lead to a lifetime of unfulfilled dreams. Stay **flexible** and **focused**.

## **Why Strive for a Great Career?**

How can you imagine not living a life where you are:

- doing what you are most passionate about,
- strengthening and using your talents for a meaningful life,
- working with others who share your values and goals.

When all the pieces come together, not only does your career move toward greatness, but so does your life.

It is impossible to have a great life unless it is a meaningful life.

It is very difficult to have a meaningful life without doing meaningful work and living your life so that it matters.

## **Why Strive for a Great Career?**

It is no harder to have a good career than a great career.

In a great careers you will have:

- More planning, but not more work
- More opportunities and satisfaction
- More fun

### **Why strive for a great career?**

If you are engaged in work you love and care about, for whatever reason, the question needs no answer.

**The question is not why, but how.**

# **The World Needs You**



**The problems facing us in Energy, Water, Climate, Health, the Economy, Food, and World Peace need a new generation of exceptional scientists fully participating in the decision process.**

**Do not underestimate the importance and role of fundamental advances in the sciences in addressing these problems**

## References:

### **Good to Great**

by Jim Collins

### **First Break all the Rules**

by Marcus Buckingham and Curt Coffman