

Academic Careers

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Why “academic careers”?

Excerpt from Tường’s email 10 days back

Dear anh Hung,

Blah blah blah ...

In the current agenda, the title of your part in the plenary session is "**academic careers**". This is really a broad topic under the "All the way home" session name.

Why did I agree to talk?

- You paid me \$400
- Round-trip ticket from Buffalo to Troy \$128
- Chance to connect with the future of Vietnam's science and technology: priceless

My typical technical talk outline

- Important optimization problem A
- B = modification of A
(so that I can solve)
- How I solved B
- Future works

This talk's outline

1. Academic career (AC) as an optimization problem
2. Because of (1), beware of the opportunity costs
3. Don't think about academic careers as an optimization problem

(sound smart and wise in the process)

Chapter 1

Academic careers as an optimization problem

AC as an Optimization Problem

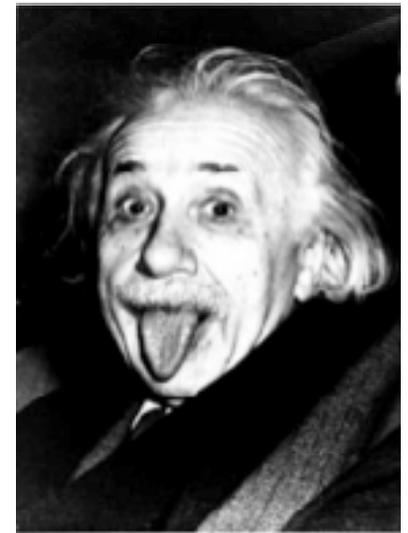
You



The constraints



The objective



For the ladies

You



The constraints



The objective



AC as an Optimization Problem

You

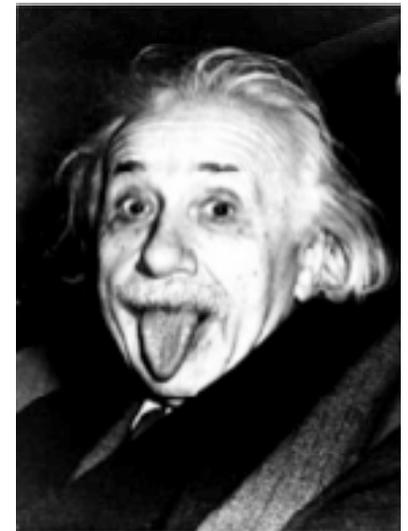


The constraints

- Keep your self sane and healthy
- Broaden your intellectual reach
- Make money to support parents
- Build the foundations for a long-lasting marriage of your own



The objective



Or maybe, just maybe

You



The constraints



The objective



Chapter 2

Opportunity costs
or

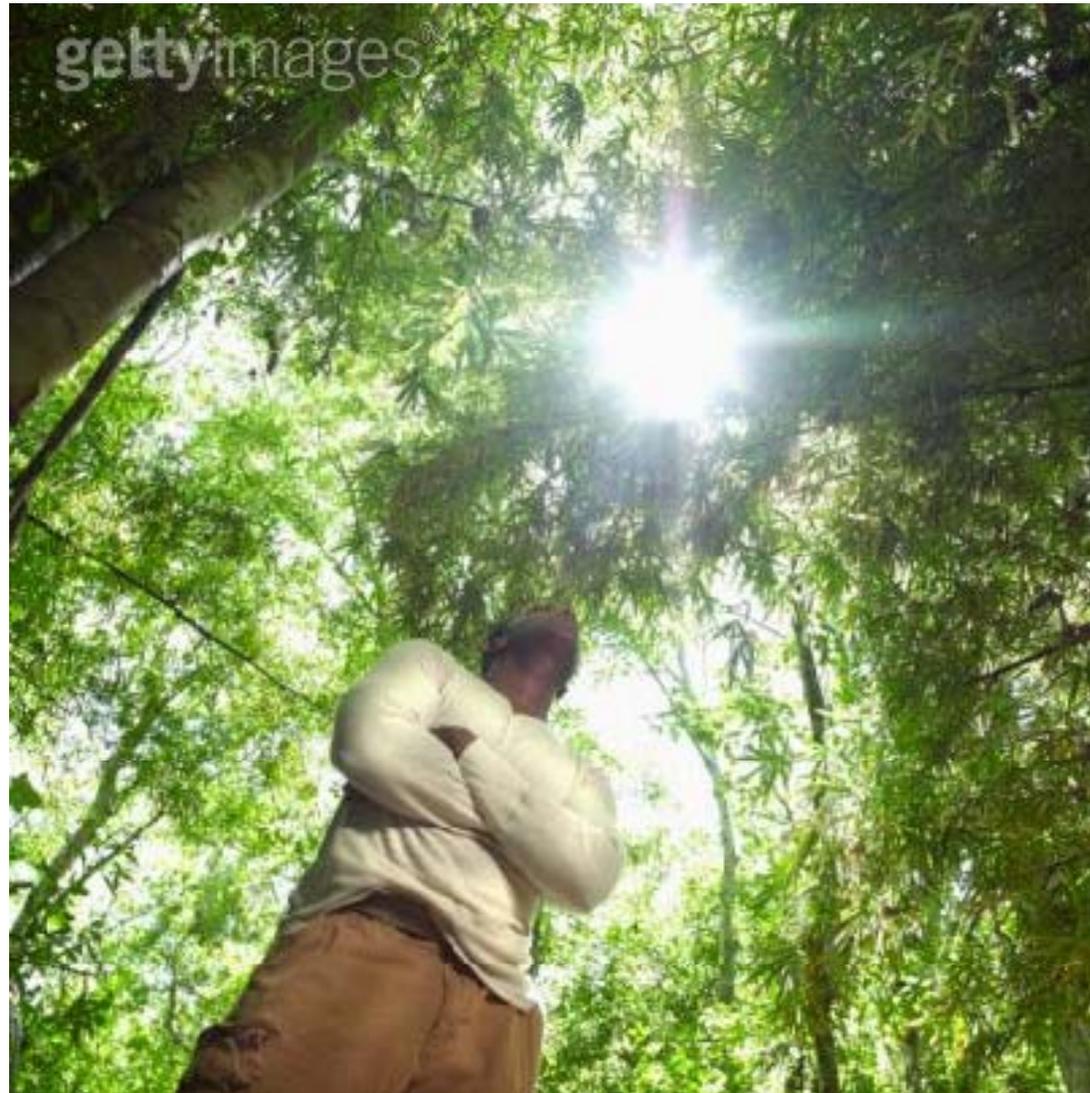
Three stories about
“a man who looks up in the tree”

Opportunity cost

= “cost of an alternative which must be forgone in order to pursue a certain action”

Example: if you chose to listen to me, you have to forgo the opportunity to fall asleep

Man looks up in tree – version 1



Man looks up in tree – version 2



He looked up because he had a ... nosebleed

Crowd and tree in academia

- Publication pressure is enormous
- A group solves an artificial problem
- A crowd jump in, solve “open” “problems” left
- What’s worse?
 - First group of authors didn’t even have nosebleed
- Think about the opportunity costs of all the brain power spent on playing this game

Man looks up in tree – version 3



A book I read on the way here

Steven Landsburg, “The Big Questions: Tackling the problems of philosophy with ideas from Mathematics, Economics, and Physics”

- The nature of reality
- The basis of knowledge
- The foundation of ethics
- How Hercules chopped off all the Hydra's heads

Three main things you gain from AC

1. Time flexibility
2. Intellectual freedom
3. A chance to be very famous
 - In a very small group of people
 - A very slim chance to forever transform the way humans think and live

Chapter 3

Throw the optimization problem(s) out of the window

Where did I go wrong?

You

The constraints

The objective



The correct formulation

The solver

Constraints Objective



"Daddy, look what I found!"

Ex: David Shaw's CACM Interview

PAT HANRAHAN: What led you to form **D. E. Shaw Research**?

DAVID SHAW: Before starting the lab, I'd spent a number of years in ... **D. E. Shaw & Co., the financial firm**, ... But as the years went by and the company grew, I had to spend more time on general management, and I could feel myself getting stupider with each passing year. I didn't like that, so I started solving little theoretical problems at night just for fun ...

An Academic = a Kid

- Enjoys spending a lifetime
 - Exploring knowledge
 - Solving problems
 - Sharing those with others
- Is intellectually honest
 - The only thing worse than a boasting academic is an academic boasting about things he doesn't know

Two defining qualities of academia

- *Intellectual freedom*
- *Intellectual honesty*

Try to avoid being obsessed with superficial values such as the number of papers published or the journal impact factors

All the way home

Please contribute in building an environment where intellectual freedom flourishes *in spite of* economic and political pressures, and where superficial values are crushed by intellectual honesty.