Academia vs. Industry in the Era of Unstable Working Market

Do we really need to study in order to succeed at work?

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Prof. Avi Mendelson
Technion, Israel and NTU

avi.mendelson@technion.ac.il  avi.mendelson@ntu.edu.sg
Agenda

- Self introduction
- Few observation on the job market
- How important is to have a degree from a good University?
- Do you need higher education? (Master, PhD?)
- Planning your career
- Conclusions and post work era
Self introduction

My rules (professional life)

1. Never stay at the same place/same work description for more than 5-6 years
2. Set priorities to yourself
3. Always set targets (to myself) and periodically re-exam if I still fulfill my expectations
   1. If no → act (e.g., change working place)

Graduate from the CS department, Technion, Israel

Start working as SW Engineer

PhD @ UMASS, USA Electrical Engineering

Technion - EE Department

Work @ NSC, Intel, Microsoft

Doing consultant to companies

Did my master in parallel

Kept my research team

Visiting prof @ TECHNION AND @ NTU

September 5th, 2019
Prediction of the Future Job Market

- Forbes Magazine - Feb 26 2019: “Predictions For The Uncharted Job Market Of The Future” - Jack Kelly
  - The future job market will be radically different—almost alien—to what we have now.
  - There are waves of forces that will significantly change the way we work and the type of jobs we hold.
  - The rapid ascension of sophisticated technology, global connectedness and a confluence of other factors will make the workforce of the future almost unrecognizable.
- Robots are expected to replace many of the “blue colored jobs”
- AI and machine learning will replace much of the “white colored” jobs
- Autonomous machines will dramatically change the transportation system
- Training and teaching will be done via “on-line learning”
Academia and the future job market

- Many of us will not work at the same area or the same field during their professional life.
- Most of us will change their working places more than 5 times during their professional life.
  - Many of us will work in occupations which are remotely connected to what we studied at the University.
- So,
  - Why to study
  - What to study in order to increase my chance to continue being employed
  - Does higher education (Master, Ph.D) needed?
Why to study?

- The simple answer is

- Your probability of getting a Job is much higher if you graduated from “good school”

- Your salary initial salary depends on the school you graduated from and how good you was in compare to your classmates

- Does it matter for your future jobs → not always.
What to study?

- Since computers are going to continue governing our life, the default answer is to study computer science or computer engineering.

- How many students are studying computer science/engineering around the globe?
  - 2-5 Millions in China
  - Another 2-5 millions around the globe

Most of them cannot find proper jobs!!!!

The job market doesn’t need more graduate students in computer related topics.

The job market urgently needs many more good/excellent graduate students in computer related topics.

ALWAYS choose to study what you enjoy doing, on topics you will devote your time to and ALWAYS aim to EXCELL.
When market changes, could I still use my current studying?

- The market may change, technology may change, but most likely, the basics; e.g., Math, Physics, Philosophy, Music, remain the same.
- Mastering these basics will allow you to move from one discipline to another, to adjust your qualifications when needed, and so, to be prepared for the future unstable job market.
- Expand your knowledge and experience to more than one discipline.
bachelor, Master or Ph.D?

- bachelor degree from a good university is needed in order to allow you best starting point
  - Companies will persuade you that it is sufficient since it limit your flexibility to move later on to another working place
- Master degree is needed in order to allow you to extend your knowledge in a specific area.
  - It will allow you to understand where the front of the knowledge in this area is
  - To explore your idea
  - To know how to express them
  - To be much better prepared for your “professional life”
- The first and most important factor for choosing a Ph.D. program is either you like to become a professor or really like it.
  - In most of the cases it will not have a short term impact on your carrier
  - But it will allow you to apply to certain types of jobs that otherwise you could not
  - It will enable you smoother transition from one area to another
Grades reflect how much a candidate fits a job
False!!! But quite often HR uses them as a criteria for invitation for interviews
But many times they use a selective subset of grads

You always need to agree with your boss
It depends on the boss (and culture)

Good managers encourage criticism → but they are rare

Personal relations helps for promotion

Managers are the most talented technical people in the company
NOT always true
The qualifications one needs to become a good manager are different than being technical leader

Your salary/position is directly depended on your contribution to the company
If you will stop deliver → you may be fired.
BUT your salary/position depends on how much it will cost to replace you
Planning your career
Few personal notes on YOUR’s career

- Career, like many other issues in life are based on tradeoffs between
  - Capabilities
  - Opportunities
  - Life style and priority in life; e.g., personal life, money, family, ambition

You will never be able to fulfil them all 😊

Only YOU can define what is right or wrong, and to what extend you achieve your goals or not

- ALWAYS define your goals for short term (month), mid term (year or two) and long term (5 years and more)
  - Set measurable targets (for yourself) and success criteria
  - If you don’t meet your short term goal, re-examine them. If you don’t meet your long Term goal, change your career path!!!!!!
Few personal notes on YOUR’s career - cont.

- Always try to be where your passion is and always expect the unexpected (in the positive way)
  
  - Examples

  - One of the leaders of the SW development in Intel was [redacted]
  - The second payed person in Apple was [redacted]
  - The leader of the compiler team in IBM research was [redacted]
  - The head of the SW group in TRW (USA based company) was [redacted]
  - One of the best programmer in my team (in the industry) was [redacted]

“if you can define where you like to be in 5 years, within a probability of 20-50% you’ll achieve that!

If you cannot define (to yourself) that, with a probability of 90% you’ll not be there”
Summary, conclusions and few other “hints” for your future.

Q&A to myself
Do you recommend other people to follow your career path?

- It depends of what are your targets
- If you are looking for money → working at Microsoft or Intel could give me more money
- If you look for “academic carrier” → staying full time at the University could be a better a choice
- But I choose to do what I consider as “meaning full work” that balance between the freedom to research new directions and the “know how”

At the “end of the day” (or even at the beginning) each of you have to define his or her priority in life. BUT always remembers that priorities cab be changed, so you must re-exam your priorities all the time AND change it as needed.
Leader or Follower?

- Followers has the advantage of not taking the risk of failure.
- Most of people, in big companies, are promoted for not making mistakes (rather than lead exciting technologies)
- In order to lead, many times you need to devote yourself to work

- BUT
- Leading is fun!
- The feeling of realizing that an idea you initiate become a successful product is indescribable (and in rare cases, you’ll get the credit for that)
Startup or established company?

- In most of the cases, in established company you’ll earn more money
- Working in startups allow you to “fast forward” the experience you may have for working 20 years in an already established company
- Rule #1 in startups → prepare for a failure and as soon as you are done with one startup, most likely you’ll start another one
- You may like to experience them both
Last but not least

► Sooner or later, most of us will retire

► Make sure
  ► To save enough money so you can keep the same style of life as before
  ► To have enough hobbies/interests to keep you happy for many years after you retire
Thank you.