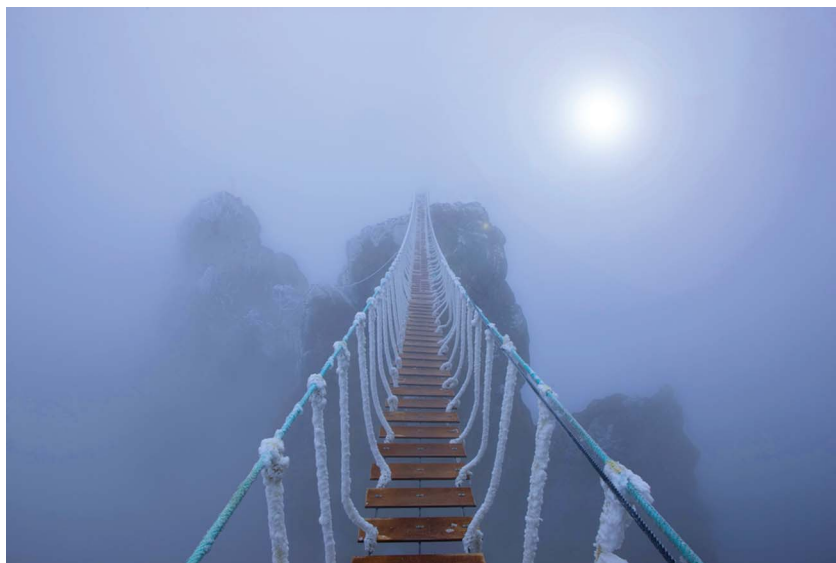


Getting Comfortable Being Uncomfortable

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AS students starting out in our academic careers, we are usually very binary in our perspectives—we either like something or hate it. For example, students may say they love programming but dread analog circuitry or enjoy math but do not like physics. They apply this same decision threshold to evaluating career options. If an individual tries an internship in a technical field and decides that he/she did not like it, the student may extrapolate this small data sample and think that it means he/she will not like any job in that field and subsequently change majors.

Here we are, individuals who are good at math, science, and scientific discovery, yet when it comes to our own careers, we do not use the same rigorous methods to determine our future. It is time to change all this. It is time to get comfortable being uncomfortable.

My first part-time job was working in a dry cleaner. My tasks were to take in customers' dirty clothes, check the pockets to be sure they were empty, and then tag and track the clothes.

Back then, we did not have health protection protocols in place, such as wearing gloves, to protect us from the horrible surprises that people forgot and left in their pockets. It was this experience that sent me running into engineering school. I decided that cleaning toilets with my toothbrush would be

preferable to enduring this unfulfilling and boring job. This experience also made me grateful for the sacrifices my parents would make to pay for my engineering education. They were both working two jobs and I am sure that many of the jobs they took were not appealing.

I was determined to make the most of my college education and was committed to expand my opportunities. I decided that I would find an engineering or technology internship.

I had a variety of jobs during college, some, which I loved, and others that were far less satisfying. I learned that from every experience comes knowledge, and we all know the larger the data sample is in our knowledge base, the better our chances are of predicting and making better decisions in the future. Different experiences, good or bad, will help you to shape your future and bring new perspectives. This is oftentimes just as valuable as the technical skills you will include on your resume.

Today's engineers need to be interdisciplinary. For example, even if you do not like programming, you most likely are going to use some form of modeling and simulation to create your design. Furthermore, every engineering project will involve system integration, where every team member is required to interface with other designs that do not directly fall within their own area of expertise. Most importantly, engineers need to be able to communicate technical concepts and approaches to laymen to affect change in government policies and education.

This is where internships and team project experiences become invaluable to building your career.

For years, the stigma of the engineer has been that we chose the engineering discipline because we cannot write or communicate. I cannot express how false this perception is and how critical communication skills are to your success. If we cannot communicate our ideas and designs at a level that anyone can understand, how can we promote the value of our work or influence government leaders who depend on our expertise to help guide public policy?

One of my engineers became a television journalist. People would offer me their condolences on my failure to keep this young woman in a “true engineering” discipline. These are exactly the kinds of negative stereotypes that have kept young people from entering engineering, namely that we are one-dimensional and are only focused on math and science.

True engineers are innovators and artists that use their talents to better humanity. This young journalist could communicate the importance of issues to a broad audience, while asking the difficult technical questions only a skilled engineer could have known to ask. She defied many of the negative engineering stereotypes and used her internship experiences to help forge a unique career that combined her love of engineering and journalism, and so can you.

Intern experiences will help you build your knowledge base, and introduce you to new exciting opportunities you did not know existed and give you the courage to pursue them. This requires you get comfortable being uncomfortable. I went through this myself.

My first engineering job offer letter listed my tasks and responsibilities for the position along with my salary. Upon reading the letter, my father got nervous, since he could not understand all the technical responsibilities and to be honest, neither could I.

He said to me, “Do you know how to do all this?”

I responded, “For the large amount of money they are willing to pay me, I will learn!”

Many students are more comfortable accepting positions that they already know how to do. You should always be seeking careers that grow your skillsets by expanding and strengthening areas that you may find intimidating and perfecting the skills you already possess. When you become proficient at a job and have mastered it, you should consider planning your next move.

There are many flavors of internships. Some are research based and others are focused on developing a product or system to become commercialized. Both experiences are valuable and can help you learn skills to realize your own innovations and perhaps start your own company. This is also an opportunity for you to focus your interests and think about formulating your graduate education plans.

Many times you will see an engineering innovation opportunity that is nonobvious to others around you. This is your opportunity to jump in and forge your own research path.

Companies hire interns because they are seeking future employers. It is a cost-effective way of trying out young talent and seeing whether an individual can learn, communicate, ask questions, and follow through on commitments. They seek individuals who are enthusiastic and willing to dive into challenges, never seen before.

One of the greatest benefits of an internship is the chance to find mentors who oftentimes remain in contact with their mentees for life! Good mentors are people who understand that students are learning topics that they most likely have not seen in their academic courses. Mentors tend to provide structured approaches and constructive feedback. If you do not receive feedback, ask for it. Again, this may make you uncomfortable, but get comfortable doing it!

One of the most common mistakes that students make is expecting that the person supervising him/her will be a good mentor. While individuals

you will work with will have their own strengths, mentoring may not be one of them. If you spend your time sitting and surfing the Internet waiting for someone to give you direction, you will not maximize your internship experience.

Many people take vacations during summer, when most internship positions are offered. In one situation that I am familiar with, my student was left alone to work independently for weeks. The student reached out to others in the company to ask what tools and programming languages were being used at the company. He then went off on his own and learned those tools and new languages. Thus, at the end of the internship, he had new skills to add to his resume and became well respected for his initiative.

It is up to you to take control of your experience and ensure your valuable time is not wasted.

I am well aware that it is always easier to provide advice rather than to follow it, so I am presenting the “Panetta internship algorithm” to address the age-old question: How do you secure an internship to gain experience, when it appears that employers require you to already have experience? The tasks are provided in a pseudoalgorithmic form so that it can be executed like a program and followed systematically.

For $i = 1$ to college years **do**

```
{
  Renew IEEE membership.
  Prepare and update resume with
  new classes, projects, and lab
  experience.
  Identify and ask people if they
  are willing to serve as references.
```

Case Network is

```
Friends: Contact former
  Teaching Assistants
  and upper classmates
  that have graduated
  and those that
  supervised your work.
```

```
Family: It is ok to ask your
  relatives to make
  introductions for you!
```

```
Professors: Are there research
  positions in their
```

research groups
available?

Technical speakers: Attend IEEE
society chapter
meetings and meet
the experts and
industry
professionals.

Career services at your school:
Check for job postings,
attend mock interview
sessions.

PSAC: Develop a Professional
Student Awareness
Conference and invite the
people you want to meet
as speakers.

End Case;

Identify your dream jobs,
companies, and research
laboratories.

If (undecided) or (seeking specific
geographical location of work)
then

Search desired geographical area
for companies using keywords

End if;

For all companies or contacts
found by any of the above
methods do;

Check their website for
opportunities.

Develop cover letter. Be
careful not to assume the
gender of the contact
person!

Submit application online
as well as to any individual
you met or had an
introduction as well.

Record in a spreadsheet the
date, the company name,
and the contact person.

End for;

When Contacted **do**

Respond quickly.

Be formal and do not call
the person by his/her first
name.

Research the company and
have a list of questions
prepared about their work.
Have examples of your lab
work, projects, and writing
samples available and be
able to show you remember
what you did.

Follow up with a “thank
you” note and ask for

feedback on your interview
performance.

End Do;

End For;

Most people think that the rewards
of an internship are only monetary and
provide the opportunity to build new
skills.

While these certainly are benefits
of an internship, keep in mind that
the most rewarding benefit of it is the
opportunity to see the impact your
work will have on advancing technol-
ogy for humanity.

Whether you work on a product
to improve healthcare or on algo-
rithms to protect people from harm,
or new tools and methodologies to
help scientists to visualize discoveries,
or informing nations on the impact of
new technologies, or new energy
saving technologies, your contribution
is your legacy. Be proud of what you
work on and have pride in what you
leave behind. The knowledge gained
from your internship experiences is
your stepping stone to designing your
own future. ■