

ECE ALUMNI ADVICE FOR STUDENTS IMPACTED BY COVID-19

Students are finding their jobs and internships are being delayed or even canceled. What to do now? And how will this look on a resume?

All recruiters will know that 2020 was an unusual year to say the least. We are going into a big unknown and opportunities are bound to dry up, so don't stress out over the canceled internship or international experiences. For those concerned about how this will "look", recruiters will not look down on those without internships, but they will want to know, given the circumstances, how you made the most of your summer.

Below is a list of suggestions from alumni on how to make the best of your summer, from an ECE alumni survey in March 2020. We hope you find their messages helpful and uplifting!

Quick Advice:

- Internships are wonderful, but they are not the only way to show future employers that you have the skills and drive to be a good team member. Sometimes showing them how you got through difficulties and created positive situations is just as, if not more, meaningful.
- I would try to encourage them to see that there are so many other ways besides internships to gain useful skills.
- I think wherever they end up for the summer, to keep in mind how they can develop these skills is a differentiator.
- Overall, be busy doing something.
- Good luck to all the UM ECE students!

HIRING

- My employer (VMware) continues to hire for full-time positions. And I continue to hear from external recruiters looking for software engineers. I'm in the SF Bay Area.
- We do have an internship still available at our company that is as of yet unfilled. 3rd year standing or above is generally necessary and it is for someone especially interested in and who has experience with embedded systems and operating systems: [CLICK HERE](#)
- Regarding the loss of summer jobs: How about negotiating with the employers for a job in the fall term instead? And use the summer term to take courses in the general education list or classes without labs.
- You ARE still very important to us as employers. We might not be in contact quite as much as we fight our daily fires to keep our businesses going (and to be teachers to our children, worry about our family and friends, and to somehow get the laundry done) but trust me you are still very much on the radar, please just be patient with us and don't hesitate to send an email to your new employer with any questions or concerns or even to ask if there is any training you can get started on if you have the time.

- Think about your career as an object that is held up by several "legs". If you build your career such that you rely on only one "core" skill - it will be unstable. Things that can happen include: your one skill could become obsolete over time - or, can be severely restricted in times of crisis. If you instead have more than one "core" skill - then, you have options. If your first skill grows obsolete - you can leverage the other one to maintain employment. If one skill becomes severely restricted in times of crisis - you can leverage the other one to pull you through the temporary gap.
- The Office of Tech Transfer would be able to hire a few EECS grad students/postdocs as Fellows for the short term: [CLICK HERE](#)
- ECRC - [Career Resources for Students during COVID-19](#)
- University of Michigan Career Center [Resources for Students during COVID-19](#)

ALTERNATIVES TO INTERNSHIPS/JOBS

- For ECE students interested in software engineering who are looking for alternatives to internships and full-time positions, and want to develop skills, I recommend picking an open source project, such as Linux, Kubernetes, or one of the many BERT-derivative projects. Github is a great site to find an open source project. There are many guides on how to become involved. One is "[How to Contribute to Open Source.](#)"
- Hopefully those with safe access to a 3D printer are aware of the opportunities to print straps / mounts for plastic face shields and if they have time, they should consider getting involved.
- Just like schools, many companies are working remotely and there is still a need to engage in special projects during the summer. While companies are being careful about how they deploy their cash during these uncertain and difficult times (just as individuals do), I don't see why some sort of virtual "for experience" projects cannot be conducted. More like a virtual internship to gain experience and interact with companies.
- There may be non-profit groups focusing on the pandemic that are open to paid or unpaid internships. For example, I learned about Resource19 this morning. The About Us page lists a bunch of UC-Berkeley students as working on the project: <https://resource19.org/pages/about.html>
- Sign up for [ECE Alumni Interactive Mentoring](#) (AIM)

VOLUNTEERING

- Find organizations in your community that are doing deliveries and shopping for those that cannot (older people, disabled, sick, etc). Volunteer to pick up groceries and supplies for them and drop them off on porches.
- Reach out to your local school district and volunteer your time as a tutor. Especially in math and science! Very few parents care to remember or know about high school algebra and calculus and lots of high schoolers are struggling with keeping up. Remote teaching from schools to a classroom is not a good replacement for in-person contact with a teacher. Not to mention there is the universal rule that parents no matter what education they have know nothing according to their kids. My own kids have informed me I cannot teach them middle school math.
- [Helping Michigan Medicine Workers](#)
- [Connect2Community](#): Find Local Opportunities to Serve

THE ARTS/LITERATURE

- Hi ECE Students: Congratulations to seniors who will be celebrating their completion of studies! To all of you, I wish you the best in your endeavors and hope that you are doing well and staying healthy and safe. The current state of events may have given many of you pause in your immediate career plans and altered the course of the next few weeks that you had planned. It has also opened up some opportunities to explore more of our global community online which may be appreciated at this time in an unprecedented way. In 2001, I graduated from the University of Michigan with a bachelor's degree in Computer Engineering. Since my graduation from our alma mater, I have found such a great appreciation for the arts; an appreciation that perhaps I did not explore as fully as I could have during my studies as a younger person. Perhaps, you may have the opportunity at this moment to pause and explore more of the arts and wealth of cultural achievements that have enriched the lives of many people over the centuries. Hope you and your loved ones are doing well. Go Blue.
- Here are a couple resources in the arts and humanities, many of them free to the viewer, that you may have the opportunity and availability to be fortunate enough to experience in the next few weeks while social distancing: <https://artsandculture.google.com/partner>

[Great Theater, Dance and Classical Music to Tune Into While Stuck at Home](#)

["What Will Your Verse Be?"](#) Scene from the film, Dead Poets Society, starring Robin Williams

- Take the time to reflect and read a book from a Nobel Prize winner. Books transport us to a different place, time, emotional space, and broadens our perspectives.
- If you haven't read it yet, read "Hitchhiker's Guide to the Galaxy" by Douglas Adams. Adams once said, "I love deadlines. I like the whooshing sound they make as they fly by." Consider this experience with that attitude.

OTHER ACTIVITIES TO CONSIDER

- Study a foreign language. This is a global world and we deal with a global workforce. It goes a long way to be able to say a phrase or two in Spanish, Indian, Chinese, etc of your future colleagues.
- Learn about the global economy. You might be working for a US based company but knowing how supply and demand works especially for a product company will help you understand your employer's business. Why is "buy American only" really not very practical or possible? Why does Apple, GM, Ford, etc make parts/products in China. Why does the value of the Yen matter against the dollar? What are the pros and cons of near shore, offshore models? What are the different departments in a company and how do they fit together - Why do finance, sales, management, marketing, etc matter to engineering?
- Use the alumni directory and find some people that have interesting profiles and reach out to them for general mentoring advice (but be patient with responses we may be slow).
 - Try [ECE Alumni Interactive Mentoring!](#)
- Try a new hobby! Have you ever wanted to try changing your car's oil? Bake those super fancy looking cupcakes? Learn calligraphy? Play that computer game? Once life gets back to normal you will wish you could learn those things so learn them now!
- Consider adopting a furry friend if you don't have one. The shelters are full and closed. Pet adoptions not only lower one's stress levels but you are doing our animal community a favor.
- Improving technical writing and business writing skills. Engineers are guilty of being poor writers much of the time. This undermines our ability to convince many people, especially non-technical people, within our organization to go along with or even completely understand our proposals. Knowing how to write for the audience you're presenting to and being able to succinctly answer questions in writing is invaluable. Additionally, it will probably help the resume itself both in terms of structure and content.
- My suggestion is that they get experience in project management, even if it's at a non-profit. Being able to show that you can handle deadlines and a budget would be helpful to almost any company. And just because they didn't get a job doesn't mean they can't volunteer to get experience in a specific field.
- Work on a passion project - a website, a small business, renovating / making something. A gamer? Find a competition or start a community.
- Dear ECE Student, I have two pieces of advice for you:
 1. Learn basic accounting and bookkeeping
 2. Review every aspect of your financial health

In a career that spanned half a century I did not follow suggestion #1 until 30 years had gone by. I did as I joined the first startup in which I was a major owner and shareholder. It allowed me to make a substantial contribution to the enterprise on top of the technical one, and my partners trusted me to stay on top of the factual situation.

- In this time of uncertainty, you need to take action to get your financial house in order. Living way below your means has become a necessity. Building your future requires you to take care of yourself first.
- Never stop learning. This is your main insurance against external risk in the job market. The wonderful thing is that your availability and access to information is unparalleled in the history of the world. Even in our current crisis - you still have the ability to order books from Amazon; to subscribe to professional magazines; to read professional websites; or, to watch professional development videos on {Coursera, Udacity, YouTube, etc.}. Most of these information sources are free; or, at the very least - low cost. Many of the tools in the engineering field - such as Integrated Development Environments (e.g., Visual Studio, IntelliJ IDEA, etc.), text editors (e.g., Atom), languages (e.g., Python, Scala, R, C / C++), and other environment (e.g., Microsoft Azure, AWS, Google Cloud) - can also be installed for free; or, at the very least - at low cost. Leverage these unique advantages of our field and time in history to always learn new things ... if for no other reason than to protect you and your career from external risk.

GENERAL ADVICE

- In general, especially for those who have lots of stress and anxiety, it is best if they only look at news / media for just a few minutes each day.
- I do know that companies have cancelled summer internships, and while that is painful for students, I hope they realize that it isn't a reflection on them and that they are no less capable as a result.
- I graduated in 2008 right as the economy was falling apart last time. I know it can seem like the world is falling apart and there is no hope, but this too will pass and things will get better. The important thing is to not give up. Keep looking for that next step, that next opportunity. Make sure to set yourself up so that when the economy improves, you're ready to take advantage of it. Maybe that means taking any internship, not just the ideal one. Or maybe that means contributing to open source projects to continue improving your skills (worth doing even in good times). Whatever it is for you, keep looking, keep striving, and you'll come out on top. You can still end up wherever you want, the path just may not be the one you were expecting.
- An unfortunate part of life - and, one that you will experience time and again as you grow older - is that your control over circumstances around you is less than you'd like. When I began my undergraduate study in 2002 - the United States had recently suffered a major terrorist attack; and was in the throes of war in Afghanistan and Iraq. No one at the time knew for sure the direction that the world may take; or, whether the lives we had planned would be interrupted by compelled military service. When I eventually graduated in 2007 - the economy was rosy; but, when I graduated again in 2010 - the economy was mired in a global recession. My first job out of college in 2007 was great .. but didn't pay well enough. My second job out of college paid well; but, was so toxic that I quit within ~ 18 months. These are just a few examples of how external circumstances can affect you. In most of these cases - you have little to no control over when or how these will strike.

My advice here is to accept and respect your lack of full control. Once you accept this, you can begin to think more deeply about how to build "optionality" into your education and career to deflect risk from circumstances beyond your control.

- How do you build "optionality" into your education or career? When you think about your education, don't just think about the "one thing" that you love or might be good at. Think about "several things" that you might like or be good at; and, that would be useful to the world combined - and, try to learn those crafts over time. As an engineer - you have an advantage that you can combine your engineering skills with many other fields in useful ways. For example: {engineering, business} might enable you to become a great "technical manager"; or, "entrepreneur". Or, {engineering, medicine} might enable you to become a great researcher; or, "medical device builder". {engineering, law} might enable you to become a "patent lawyer". {engineering, liberal arts} might enable you to become a great "technical writer"; or, "author"; or, "commentator"; or, "industry leader". Any and all of these combinations are excellent; and, if you put in the time to learn them - you will be rewarded with a career that is less affected by external risk.
- If you haven't had an opportunity to do so yet - learn to manage your personal finances in an effective way. Again - the Internet is rich with information about how to do this. Right around the time that I graduated in 2007 - I read a series of articles on CNN Money on the "basics of personal finance"; but, since then: many other websites have begun to offer similar information. Pick your favorite website - and, learn. I'd recommend that you use tools like Intuit Mint or Personal Capital to aggregate your accounts into a single interface. The key idea here - as it relates to the mitigation of external risk - is to think very carefully about how you might (over time) build up a "protective layer" of cash to tide you over these inevitable crises. Even if you do everything "correctly" - e.g., by learning more than one skill; and, by always learning "new things" - these are not "guarantees" against bad things happening to you or your career. Bad things can still happen - although, the likelihood and severity of these downturns should be considerably less. Even if a "bad thing" happens, however - like a sudden job loss; or say, a global pandemic that prevents you from working for an extended period of time - access to cash will enable you to maintain your life until things settle down; and, you get back on your feet. Sit down now to think through (1) how you might be able to build up income over time; and, what you need to do from a personal development standpoint to do so; (2) how you might be able to reduce your costs (e.g., by placing limits on the amount of home or educational debt that you're willing to take on; or, by living a reasonably frugal lifestyle); and, (3) how you might be able to invest excess cash in a prudent way to generate a little income from capital instead of just labor. If you do all three of these things, you should be able to more quickly build up a "protective layer" of cash to propel you through the "bad times".
- No matter how bad this all seems, be confident that this condition is temporary. It may last for a few months; or potentially, a year or more - but, no matter what: things will eventually turn for the better. Don't lose yourself in frustration or despair. Use the time that we (all) have now to "dig in"; and, prepare yourself for the "good times" that will eventually return. And - stay inside.

- My advice would be to the individual that has time on their hands is to pursue personal projects, and to do some soul searching. For example, a couple of years after graduation, I wasn't satisfied with what I was doing so I decided to do some soul searching and figure out what I wanted to do as a long term career. Once I figured that out, I then started figuring out what I needed to learn and made small projects to track my progress online to potentially show future employers what I've been doing. I like to manage my stress/anxiety by cooking, gardening, and boxing. Something to do outside of engineering/job seems to keep my mind happy.
- Even though we don't know exactly how long this will be, this is temporary. We are having a moment, although somewhat forced, to focus on ourselves. Improving ourselves in a more independent way. Learning to self soothe. Learning to be happy in our own skin. When the danger passes, and it will, we will be ready to meet each other, teach each other, go on adventures together, and hug once again.
- Engineering is hard. Projects fail. Deadlines fall. Companies go out of business. The only suggestion I can give you is don't take the failures too hard and just keep going. Learn from everyone. You've heard it's not how many times you get knocked down but how many times you get back up. This is perhaps your first real world example and it's not even your fault. It sucks, but if it were easy everyone would do it. Take this time to learn something new. You may not get a chance again for a long time. As I'm trying to think up something inspirational to say - not an easy task for an old grouchy engineer - an example unfolds right before my eyes: SpaceX's next generation "Starship" rocket exploded on the test stand this morning. How is that inspirational? They're already in the process of building its replacement. Just keep going until it works. The only thing more frustrating than being stuck at home for the summer will be realizing you did nothing useful with your time off. Newton developed Calculus during the bubonic plague. You can at least get in shape, read some books, write a computer game, or learn something new. Stay safe and Go Blue.
- My father, BSE 1927, graduated just before the Great Depression began. He always told me (BSE(EE) 1967) that in times of crisis the duty of an engineer was to "do for a dime what anyone can do for a dollar."
- Hi! I would like to tell you CONGRATULATIONS on being a part of the most amazing College and University in the world! And yes, even in today's conditions that is such an amazing community to be a part of. So, speaking of today's world...it's a pretty scary world out there. I'm sure you are feeling such a range of emotions, especially you graduating students. Not only is there the general stress of COVID-19 but also the stress of what will happen to all the dreams and plans you had after leaving the hallowed halls of North Campus. For those of you not graduating, you have the comfort of knowing you will return but the uncertainty of the circumstances and your summer plans. In short, yeah it SUCKS. So I can't give you much comfort in alleviating how much the situation sucks. As an alumni, I would have you visualize life as the ocean. Some days will be sunny and calm and others will be stormy and turbulent. But it is never always going to be one or the other. This WILL pass and although the outcome may not be what you planned it will be ok because you are accomplished enough to be a part of the

ECE community and hence have the tools to make it ok. It's been a while since I was a student but I always look back and marvel that I made such a great choice to major in computer engineering. That path has opened so many doors for me (some of them completely unplanned such as starting my own business!) and I am confident that those doors and many others will be available for you if you can just be patient, resourceful, and recognize that this is one of many bumps in the road you will have in this wondrous journey we call life.

RESOURCES

- [The Edward Ginsberg Center for Community Service and Learning](#): We are a community and civic engagement center with a mission to cultivate and steward equitable partnerships between communities and the University of Michigan in order to advance social change for the public good. Based upon this mission, our vision is for inclusive democracy; thriving, diverse communities; and equity and social justice
- UM Center for Entrepreneurship (CFE) [Resources Link](#)
- www.coursera.org - Many courses for free, Master a new language (python is good), learn about technical areas of interest.
- [udemy.com](http://www.udemy.com) - <https://www.udemy.com/aspen-plus-getting-started/>
- <http://www.lynda.com/>- Great way to learn Excel, Word, Visual Basic, other software, and many other types of classes too
- <https://www.khanacademy.org/>
- ocw.mit.edu - MIT OpenCourseware - Similar ones exist for Stanford and Harvard
- <http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-096-introduction-to-c-january-iap-2011/>
- Specifically to review C++ programming: <https://www.coursera.org/course/cplusplus4c>
- powerbi.microsoft.com Business Intelligence - Power Query and Power BI
- <https://techcom.engin.umich.edu/tutorials-draft/> - Technical Communications tutorials
- Learn about cloud computing. At ProQuest we're on AWS. There are free intro courses (<https://aws.amazon.com/training/intro-to-aws-labs-sm/>) on a site called qwikLABS - I think they have other cloud platforms also.
- For data science/machine learning types, find datasets or challenges of interest on <https://www.kaggle.com/>. Team up with folks you know to be able to accomplish more and gain teamwork experience.
- Put code samples from your classes and from your summer onto github.com Employers want to be confident that you know how to code well and this is one way to demonstrate it.
- <https://resource19.org/pages/about.html>