Trailhead: BSc in CS

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A Career in CS

Average starting salary
> $50K

… Mines graduates
> $63K
A Career in CS

Excellent job prospects

... Mines placement rate 93%

THE #1 PROGRAMMER EXCUSE FOR LEGITIMATELY SLACKING OFF:

"MY CODE'S COMPILING."

Hey! Get back to work!

Compiling!

Oh. Carry on.
A Career in CS

Work environments that suit your preferences:

- work alone
- on software teams
- with other engineers
- with other scientists

THE #1 PROGRAMMER EXCUSE FOR LEGITIMATELY SLACKING OFF:

"MY CODE'S COMPILING."

HEY! GET BACK TO WORK!

COMPILING!

OH. CARRY ON.
Don’t look for a perfect school, there aren’t any.
It’s all a trade off — instead of optimizing the outcome, consider minimizing the risk.
Believe it or not, there are excellent, small schools out there where the likes of you and I are not the minority.
Take courses in: math (of course), computer programming, data structures, software engineering, discrete math and logic, algorithms, operating systems, networking, computer languages and a wide variety of electives...
As you progress through the curriculum, your grades depend more on larger software projects than on exam results (but exams don’t dissappear...)

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Keith Hellman, CSM
The school you choose largely decides what electives you will be able to take

- applied computer science vs. theoretical topics
- if graduate courses are available
- and the minors you can pursue in addition to a degree in CS

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Now is the time to make your college work easier...

...a short list of things you can do now, that will probably help you in college, and they certainly won’t hurt your prospects.
“You need math for everything. . . 

Go out of your way to learn more math.
Decide what **you** think about software patents, software liability, ISP filtering, DRM, government oversight. . .

How will you articulate your convictions to the computer laity?
Find your Platform

Hackers briefly took down the website of the CIA yesterday...

What people hear: someone hacked into the computers of the CIA!!

What computer experts hear: someone tore down a poster hung up by the CIA!!
(try to) Stay on Top of Things (they move fast)
Read Up on the History of CS and Computers

When it came to eating strips of candy buttons, there were two main strategies. Some kids carefully removed each bead, checking closely for paper residue before eating.

Others tore the candy off haphazardly, swallowing large scraps of paper as they ate.

Then there were the lonely few of us who moved back and forth on the strip, eating rows of beads here and there, pretending we were Turing machines.
Learn a Language (or two!)

- Low latency web development → Javascript + SocketIO + Flask, Node.js
- Client side web development → (X|D|)HTML + CSS + Javascript
- Server side web development → Ruby on Rails, Python + Django
- Desktop Application development → C++, Python, Java
- Mobile development → HTML5, Swift (iOS), Objective C (iOS), Java (Android)
- OS & embedded development → C, C++
...did we mention math?

Go out of your way to learn more math.
So, you’ve already installed Linux . . . how many different distros? . . . LFS yet? . . . do you install with LVM over RAID? . . . how small can you make it (20 MB? 8 MB?) . . . raspberry pi yet?
Buy an old notebook and start carving notches in the case for each success...
(yawn) Tired of Vanilla Linux?

Consider

... FreeBSD or OpenBSD
... minix or GnuHURD
... FreeVMS (retro!)
... ReactOS
... Haiku
... KolibriOS (3s boot)
... Inferno (distributed)
(yawn) Tired of Vanilla Linux?

Any and all of these will allow a lot of **compare and contrast** opportunities with Linux (or Windows). You will be **so** ready for a 400 level operating system class...
(yawn) Tired of Desktops

Buy a Samsung Galaxy S2 on E-bay (≈ $95) and install Replicant
Be a Lurker

Pick a software project you are interested in ... (mine might be)

► grub
► uboot
► vim
► gimp
► pfSense
► wireshark
► OS kernel
► OS kernel wi-fi drivers

... and lurk on the developer list, user forum, or join the documentation effort.
...better yet, Learn how to Break the Code™

Unless you choose a very new project, this might take a while. You may not find one in a year...

...so go ahead and pick a young project — join a project with a high “traction” coefficient. It will be more fun and more rewarding.
Try the Job Out

Volunteer to provide computer or IT assistance to a non-profit.

Real experience is worth

2.541 O’Reilly Books

6.428 “Dummies” Books
Try the Job Out

Volunteer to provide computer or IT assistance to a non-profit.

Not only can this be a great learning experience, but also a sparkling attribute on your college applications.
Find your Itch, No Matter how Wacko

One benchmark of experience is how many “itches” you have.

Specific applications, features, or scripts you’d like to see written that would make your hobby, job, and pursuit of happiness™ easier.

Often times this is a person’s impetus for learning how to program in the first place.
Once you’ve got some development or testing experience under your belt, consider attending Hack4Colorado next year.
**Q & A**

**SHOULD I ASK?**
I'm locked out, and trying to get my roommate to let me in.

**FIRST I TRIED HER CELL PHONE, BUT IT'S OFF.**

**THEN I TRIED IRC, BUT SHE'S NOT ONLINE.**

**I COULDN'T FIND ANYTHING TO THROW AT HER WINDOW.**

**SO I SSH'D INTO THE MAC MINI IN THE LIVING ROOM AND GOT THE SPEECH SYNTH TO YELL TO HER FOR ME.**

**BUT I THINK I LEFT THE VOLUME WAY DOWN, SO I'M READING THE OS X DOCS TO LEARN TO SET THE VOLUME VIA COMMAND LINE.**

**AH. I TAKE IT THE DOORBELL DOESN'T WORK?**