CAREERS IN TECHNOLOGY

Imagining your Post Graduate Future

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CAREER PATHS

Job Titles

Developer > Programmer > Engineer > Architect: What does it all mean?

- Developers generally modify or enhance the final product
- Programmers build the basic functionality
- Engineers ensure that it runs well on the hardware and/or build ground level functionality

- The lines between them are fuzzy and often used interchangeably
- There is very few junior engineering roles
- A programmer is typically a more senior developer
- Architects live somewhere between a business analyst and a developer

Front End (What you see)

A front-end developer builds the front-end portion of websites and web applications—the part users see and interact with. A front-end developer creates websites and applications using web languages such as HTML, CSS, and JavaScript that allow users to access and interact with the site or app

- JavaScript (JS)
- Angular
- React
- jQuery

Top Job Tips: Have a portfolio of webpages you have built

Back End (How it works)

Backend developer responsibilities include creating, maintaining, testing, and debugging the entire back end of an application or system. This includes the core application logic, databases, data and application integration, API, and other processes taking place behind the scenes.

- C# (C-sharp)
- Java
- Golang
- PHP
- SQL

Top Job Tip: Show an automation tool you created and executed or two softwares you had talk to one another. Focus on scalability

Network Administration

Network administrators install, configure, and manage computer infrastructure, such as routers, switches, and cables, that support an organization's computer networks.

- Where software meets the real world
- How software interacts with people, hardware and other systems
- Concerned with data storage, network work securities and internet protocols

Job Tip: You deal with users frequently; be friendly and patient!

Most common first job: HelpDesk or Jr. Network Admin

I don’t want to be a developer. **Now what?**

- Project Manager
- Business Analyst
- Scrum Master (Agilist)
- Designer
- Network Security
- QA Testing
- IT Infrastructure
- Technical Sales
- Product Manager
- Many more

INDUSTRY & EMPLOYERS

The 4+1 types of CompSci Employers

- Established Technology Firms (Apple, Microsoft, Amazon etc)
- Consulting Firms
- Start-ups
- Large firms with high technology needs
- Gigs / Upwork / Contracting

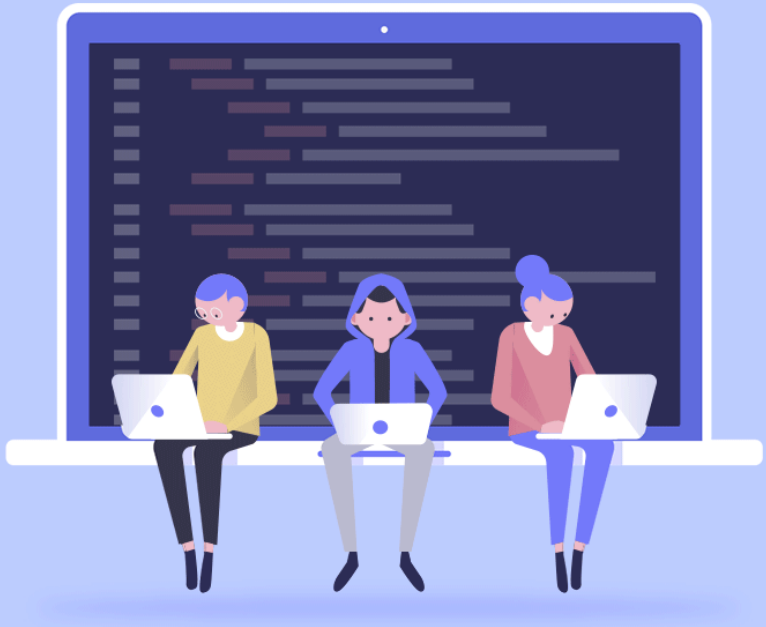
Components of a great first job

- Team members with strong skills willing to mentor
- Modern (or modernizing) tech stack
- Collaborative culture
- Uses common tools and methodologies
- Wide application of product

Working Remote

- Can be challenging early in your career
- Can work if large team and strong remote culture
- You compete with a wider geography
- You limit learning opportunities
- You need even more tool knowledge (especially collaboration tools)

SKILLS



Soft Skills

- Inquisitive: Ask (Smart) Questions
- Focused
- Eager/Interested
- Collaborative
- Customer Service
- Good Listener
- Active Learner

The SDLC *(Software Development Lifecycle)*

- **Waterfall** – NASA – Highly planned sequential, methodical execution. Failure is not an option
- **Iterative** – This Presentation – Try it, see what works, try to do better next time. Failure is by design
- **Agile** – SpaceX - Constantly shifting priorities. Work is done in sprints after priorities are set (usually every 2 weeks), Failure is acceptable, but not ideal
- **Lean** – Toyota - Prioritizes efficiency above all else. Go slow to go fast

Tool Use

- QA and Testing Tools (Selenium, Loadrunner, Apache, SOAP)
- DevOps Tools (Docker, Git, Kubernetes, Ansible)
- SDLC Tools (Jira, Confluence, Jenkins)

Every niche has its own tools. Knowledge of these tools often are the difference between making the shortlist and getting the offer.

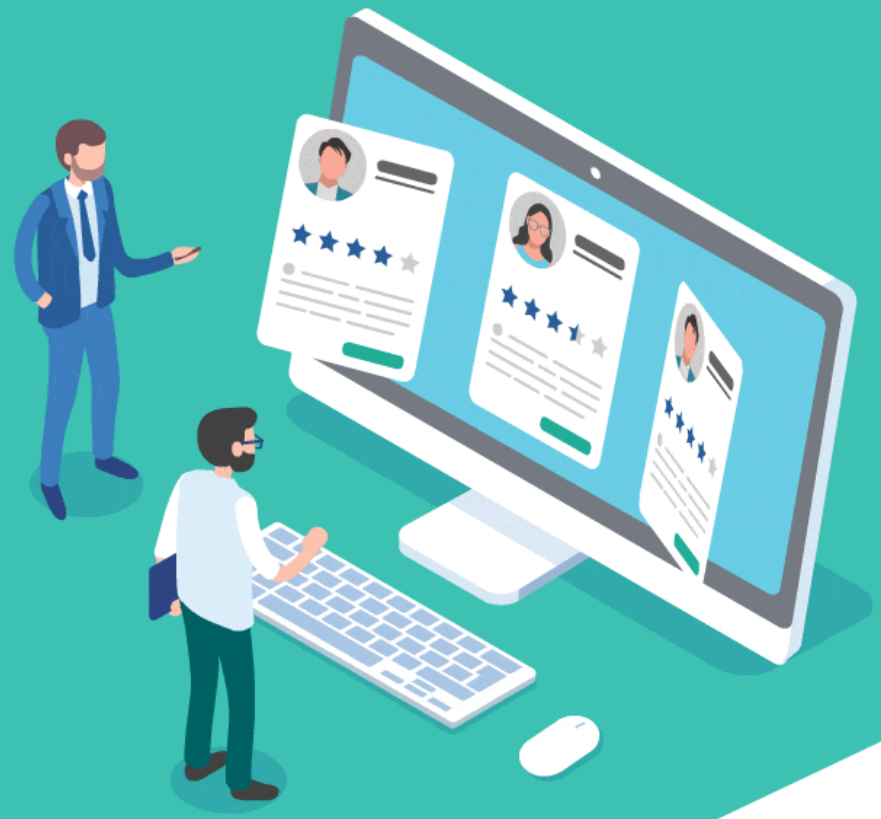
Knowing how an engine works, doesn’t teach you how to drive a car

getting involved

What makes good Experience?

- Hackathons
- Portfolio
- Your own apps
- Opensource contributions
- Mods for games
- Github/Stackoverflow

MARKET & RECRUITMENT



Current Market

- Capital Costs are high > Challenging for start ups
- AI > Creating AND reducing job numbers
- On-Prem to Cloud
- Modernizing Existing Systems
- Canada is way behind on the tech front
- Remote is going away (somewhat)
- Blockchain and VR/AR (Web 3.0 and 4.0)

Current Market

	2022/ Early 2023	Late 2023/2024
Layoffs	160,000	80,000 (and falling)
US Openings	450,000	200,000
Percentage of Apps Interviewed	7.5%	5.8%
Apps per Hire	110	275

https://www.linkedin.com/pulse/decoding-2024-tech-job-market-offerzen-7hf3f/

THE FUNNEL: HOW RECRUITMENT WORKS (TYPICAL ROLE)

Job gets posted – About 1 week goes by….

Review Applications: 0-500 Applicants sit in the system. (Lets say 200)

First cut:

Boolean Filters: Most limiting first (location, hours, certification. etc)

Time Cost: **30 Seconds**

Typical cull rate ~80% (40/200 Resume)

Second Cut:

Resume Screen: Looking for min. experience, passable formatting, nice to haves

Time Cost: **10 Minutes**: 5 - 15 Seconds per resume

Typical cull rate: ~75% (10/40 Candidates)

Third Cut:

Phone Screen: “Feel out” candidate. Screening out rather assessing

Time Cost: **5 hrs** (30 minutes to schedule, screen and document a call)

Cull Rate: ~50% 5/10 Interviewees

RESULT = 5 Candidates for Interview

THE FUNNEL: WHY HIRING NEW GRADS SUCKS (FOR EVERYBODY INVOLVED)

Job gets posted – About 1 week goes by….

Review Applications: 50-1000 Applicants sit in the system.

First cut:

Filters like location and degree work, but its hard to cull out more than half with this method. None of the available information is a differentiator

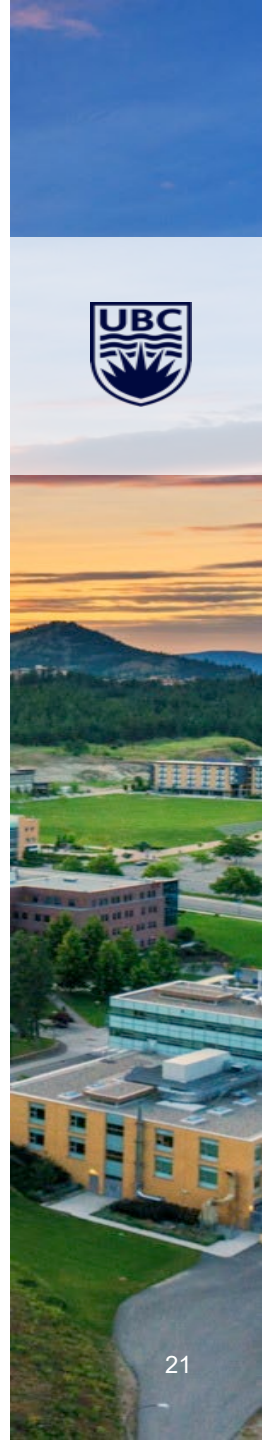
Second Cut:

Most Resume look mostly the same. Experience is minimal, accomplishments inflated or non-existent, major lack of true signals of quality

Third Cut:

Interviewees have little experience to reflect on, systems or tool use, lack confidence in ability. Few accomplishments. Communication and career alignment main determinant

RESULT = ?????? Candidates for interview



How recruitment tends to progress

1. Initial Contact > *Application, recommendation, network etc.*
2. Phone Screen > *Not a tech person (Recruiter/HR)*
3. General Interview > *Maybe a tech person (PM, Manager, Team Lead)*
4. Technical interview > *Definitely a Tech Person*
5. Technical demonstration > *Optional: Can be live or short assignment*
6. References (sometimes)
7. Job Offer / Negotiation

Automation in recruitment

- Companies will automate early phase recruitment to screen large volumes of applications
- For role where talent is harder to rank (like new grads), you will see more one-way interviews, assessments and other impersonal methods
- AI will get better and better at assessing *resume* fit.
- Conventionally attractive resumes will be persistently presented with job opportunities and paid a premium.
- Unconventional resumes will still need to rely on networks.
- Candidates will use tools to automate customized applications, increasing volume of resumes

Automation in recruitment

- Interview and scheduling will become much easier, but more transactional
- More companies will post "soft jobs" to capture rare candidate details.
- Outreach from employers will be personalized through AI
- In-person interviews becoming increasingly rare and pushed to later in the process
- Speech clarity and general speaking abilities will be rated by AI, but NOT skill level or culture fit
- Online Coding Assessments

Tips for applying

- **Speed matters** – The faster you can apply for a role after its posted, the better. Sign up for career alerts on indeed and Linkedin
- **Polish your online presence** – Recruiters already will look at linkedin and facebook. Soon, AI will do the looking for them, and on more sites.
- **Use AI** to tailor applications to different companies and jobs and get an 90% finished application
- **Don't use AI** for the final 10%. Inject some humanity back into your application to un-AI it to stand out after you beat the filters.
- **Bias your recruiter** - Be an easy candidate to work with, be predictable, recruiters will pass their positive impression along to managers, make the process your ally not your enemy.
- **Personal networks matter more than ever –** Applicants using AI will flood recruiters; any personal connection becomes an advantage and differentiator

How to stand out as a New Grad

- You seem fun to work with/easy to coach
- You studied actively and with purpose.
- You learned outside the classroom and sought additional skills
- Its your hobby as well as your profession
- You make an effort to understand the business
- You are confident but egoless
- You have done impressive things in the past
- Additional Certifications
- Impact-driven work (and learning)

Why it's great being a Computer Science Grad

- You will get to work at the forefront of the biggest transformations in our world
- You can impact the world – individually, like no other field
- You have unicorn potential/ Infinitely scalable products
- Every single other job relies on your field
- It’s the least culturally and geographically localized career
- You can directly see what you have built
- Incredible opportunities for creativity

Hard Truths about Computer Science

- Your education will never stop
- There is not hundreds of companies everywhere craving new grads
- You will still need to be likeable and talk to people (especially early)
- You will compete globally against lower cost markets
- Employment is rarely steady and if it is, it's not usually very exciting
- Your first job search will be the hardest of your life.
- People will ask you to fix their computers all the time
- People will constantly approach you with “a great idea for an app”

Key Takeaways

- There are hundreds of careers beyond just being a developer
- You probably won't know where your career will take you until many years after you graduate
- Your degree gives you the fundamental knowledge to excel but isn't the whole picture. It raises your future ceiling more than it raises your entry point
- Companies care less about what you know and more about what you can do
- There are more possibilities than I could ever tell you about in jobs that don't even exist yet


Thank you!
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