



# ROAD AHEAD

WANG BOYANG

DG11 CS2020

NUS SCHOOL OF COMPUTING

# YOU ARE ALMOST DONE WITH CS2020

- My views on CS
- What's next?
  - Summer?
  - Internships?
  - Modules?
  - ...
- Last words

The background is a dark blue gradient with several faint, concentric circles centered in the upper half. In the corners, there are white line-art elements resembling circuit boards or neural networks, with lines and small circles connecting them.

IT'S THE BEST OF TIMES

# THE IMPACT

- Please name any other discipline in University where you can potentially change the world, single-handedly
  - Just build the next Facebook
- Veni Vidi Vici
  1. You spot a problem
  2. You build a product
  3. You deliver and changed people's lives, by a little

\*Route exclusively for programmers

# THE PEOPLE

- You see all sorts of personalities in SoC
  - Hackers, Open source advocates, Emacs fanatic, Rockstar programmers...
  - Merchants, Engineers, Salesmen, Leaders, Autistic savants, Dictators, CEOs, Billionaires, Heroes, Rebels, Money-grubbers...
  - Geniuses, tons of them
  - Typically crazy
- The community
  - Traditions, conventions and anecdotes
  - People are sorted by “Programming power”
  - The ever-ceasing pursuit for programming excellence

# THE MONEY

- At Google U.S., software engineer starting: US\$100k package
- A top notch (~60) SoC fresh grad from NUS expects S\$5k
  - Average S\$3k9 [MOE/graduate-employment-survey-nus.pdf](https://www.moe.gov.sg/files/Assets/Images/2016/06/moe_graduate_employment_survey_nus.pdf)
- The market is in a deep hunger that is expected to last for years
  - Too many jobs, too few decent programmers
  - Holds even without the word “decent”
  - SoC has its own career fair (all other faculties don’t have!) when companies flock to COM1 and try to grab people

# THE MONEY

- Startup

- If you found a company yourself, the figures become irrelevant
- How does US\$19 billion sound to you?

- Many many possible career paths

- SE, QA, Testing, Infrastructure (hardware), Server admin, Web, Mobile, ERP, Security, Database, Gaming, Network...
- PM, IT Consulting, IT Analyst, Data Analyst, Sales engineer, Investment banking...
- About each and every industry in the world

The background is a dark blue gradient with several faint, concentric circles centered in the upper half. White, circuit-like lines with small circles at the ends are positioned along the left and right edges, resembling a stylized circuit board or data flow.

AND YOU ARE THE BEST OF ITS KIND



# YOU ARE GOOD

- You are finishing CS2020, with most likely an A+ /A/A- grade
  - CS2020 is tougher than CS1020, CS2010 or CS3230, in terms of rigor and pace
- By gone thus far, you are considered talented
  - There are those who CAN'T
- Different people have different strength
  - You are competing with selected peers who were the top in their classes anyway
- Anyway I know you are good. I'm your TA you should trust me
  - What is faith for?
- And let's say you just suck at programming, there's still a wayout
  - Read on...

# THE TWO PILLARS

- There are two pillars for a programmer's prowess
  - Fundamentals– Data structure and algorithms
  - The ability to build– Domain knowledge, Software engineering
- You might feel you can't do any practical development yet
  - Well those are the EASY ones! Just pick up
  - You have learned the hard part here with a 6MC module

The background is a dark blue gradient. In the center, there are several faint, concentric circles. Along the left and right edges, there are white, stylized circuit board traces with small circles at the end of the lines, resembling electronic components or data paths.

SO ALL IS WELL. WHAT'S NEXT?

# SELF-LEARNING

- Start to build
  - Web– the easiest place to start, maybe?
  - Mobile
- You don't really need a mentor or a book to get started
  - Google
  - Stackoverflow
- Put the very first side project on your resume
- Don't throw away your fundamentals
  - When reviewing for 2020, go deeper than required whenever it interests you

# SELF-LEARNING

- Case study: what I did at this time last year?
  - Learn Git please
  - Want to learn Web development, try to read other people's code but couldn't understand
  - Frustrated. Tried to read books, w3schools and Codecademy. Too dry
  - Went for an interview at a startup in NUS. Said something like "I know basics of JavaScript and I learn very fast" :P
  - Also went for orbital programme. Not too useful as it turned out (supervising absent)
  - Got the internship. Got the bit of basic understanding there
  - The next semester took CS3216, after which I finally think I could call my self a Web dev
  - Do freelance work for NUS profs (paid quite well, probably because they think it's magic :P)


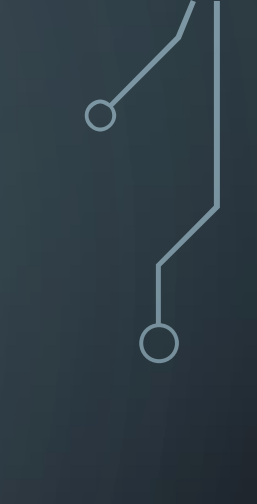
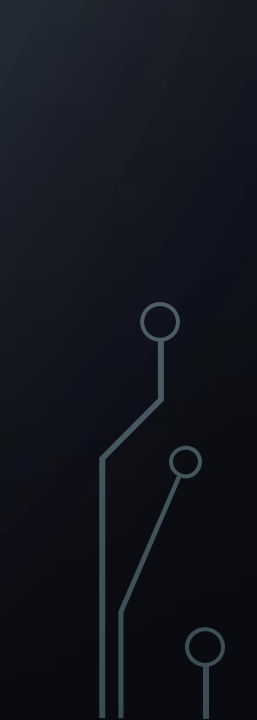


# INTERNSHIP

- Why internship?

- Intensive learning and hand-on experience
- Find out you true interest and talent
- Decorate resume and prepare you for full-time job
- Connect to practitioners in the industry
- Allowance

- Typical flow

- Send application
  - Resume screening
  - Phone screening
  - On-site tech interviews
  - Offer
- 
- 
- 

# INTERNSHIP

- When to apply?
  - High-profile tech companies and MNCs
    - As early as August and September of the year before
  - Local SMEs
    - Main window September – January
    - With exceptions
    - Internship programmers might not be as well-structured
  - Local startups
    - Very flexible, in need of manpower all year long
    - Many are willing to take interns with **no background at all**

# INTERNSHIP

- SoC internship schemes

- Internship that earns MCs

- SIP

- The **Student Internship Programme (SIP)** is a full time attachment offered for three months between May till July each year
- 6 MCs
- Application: early January

- ATAP

- The **Advanced Technology Attachment Programme (ATAP)** is offered twice a year, each time for a period of six months: January to June and May to November.
- 12 MCs
- Application: early August and early January



# INTERNSHIP

- SoC internship schemes

- Internship that earns MCs

- SIP

- The **Student Internship Programme (SIP)** is a full time attachment offered for three months between May till July each year
- 6 MCs
- Application: early January

- ATAP

- The **Advanced Technology Attachment Programme (ATAP)** is offered twice a year, each time for a period of six months: January to June and May to November.
- 12 MCs
- Application: early August and early January

# INTERNSHIP

- NOW is not too late
  - Local startups
  - Even during the summer holiday, or next semester on a part-time basis
  - Don't be afraid
- What Class you want to choose this time?
  - Warrior, Rogue, Mage, Priest...
  - Mainly but not limited to software development positions
  - Find out your true love now or regret later
- [Project Intern](#)
  - Initiative by our dearest Michael, one of your TAs
  - About all the info you will need to get you an internship in one of the high-profile tech firms in the Valley

# OTHER POSSIBILITIES

- Research projects
  - Highly valued by big, hard-core tech companies
- Google Summer of Code
- Contribute to open source projects
- Coding competitions
  - Google code jam
  - ACM-ICPC

# MODULES

- CS2103 Software Engineering
- CS3230 Design and Analysis of Algorithms
- CS3216 Software Development on Evolving Platforms
- CS3217 Software Engineering on Modern Application Platforms
- CS3233 Competitive Programming

# JUST SAYING

- I insist on this slide because I don't want to neglect anyone
- “If, by now you have realized you kind of hate programming and don't want to have anything to do with coding in the future”
  - It's okay. And it's possible. For example an IT consultant in the accounting Big Four literally writes no code at all
  - If you can bear with it, finishing the Bachelor of Computing degree is still extremely advantageous, even if you want a non-development career
  - Else, it's always possible to transfer to IS department or other faculties. It's not that big a deal
- It's good that you find it out early

# ...FOR A MORE COMPREHENSIVE READ

- [Notes to Computer Science Freshmen, From The Future](#)
  - Huge amount of information. Useful and entertaining. Take your time in the summer

The background is a dark blue gradient with several faint, concentric circles centered in the upper half. In the corners, there are white line-art elements resembling circuit boards or neural networks, with lines and small circles connecting them.

**RANDOM STUFF**

# SAY HI

- These people from 2020 will very likely become your:
  - Project group mates
  - Future colleagues
  - Sources of connections and info
  - ~~Partner~~
- Update me
- Or come back as a revenger and torture the next generation



# ...AND LASTLY, TAKE GOOD CARE

- Work hard, but not too hard

