The Four-Year Career Plan for CS Majors
CS 191 Fall 2021

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Preview

- Rationale.
- Balancing academic and career planning.
- Examples from a successful Year 1
- Examples from a successful Year 2
- Examples from a successful Year 3
- Examples from a successful Year 4
- International Students: CPT and OPT
- The Co-Op Program
    - -U.S. Citizens
    - -International Students.

Rationale – Why Plan Your Career

- Challenging course work and courses are important for interviews and for work roles.
- Need technical ground-work: Build strong personal projects.
- Challenging career preparation process.
  - Personal Projects
  - Behavioral Interviews
  - Technical Interviews
  - Coding Challenges
- Need time to market yourself, resume, LinkedIn Profile, GitHub etc.
- Helps you estimate your time, balance your academic load and have better academic and career outcomes.

Typical Career Paths for CS Majors

- **Software Engineer** – Entry Level or Junior – Mid Level- Senior- SDE 1
  - Job Ad from Collins Aerospace (Domestic) https://jobs.collinsaerospace.com/job/windsor-locks/sde-project-engineering-co-op-summer-fall-2022/1738/12788971776
  - Summer Internship posting at Paypal: https://wd1.myworkdaysite.com/recruiting/paypal/jobs/job/San-Jose-CA/Software-Engineer-Intern_R0075012?Codes=W-LINKEDIN

- **Product Management**: Junior Product Manager or Associate Product Manager
  - Junior Product Manager at Atos: https://jobs.atos.net/job/Albany-Junior-Product-Manager-NY-12201/695489401/
  - Product Management Internship at Cisco-Meraki: https://jobs.cisco.com/jobs/ProjectDetail/Product-Management-Intern-Winter-2022-Internship-Meraki/1344329?source=LinkedIn

- **Data Science**: Data Analyst, Data Scientist 1, Data Engineer
  - Data Scientist 1 PayPal https://jobsearch.paypal-corp.com/en-US/job/data-scientist-1/J3M52P76NL7ZKPJJN39

  - Data Scientist Intern Duolingo(lists all skills needed): https://boards.greenhouse.io/duolingo/jobs/5445806002

Pointers for Domestic Students

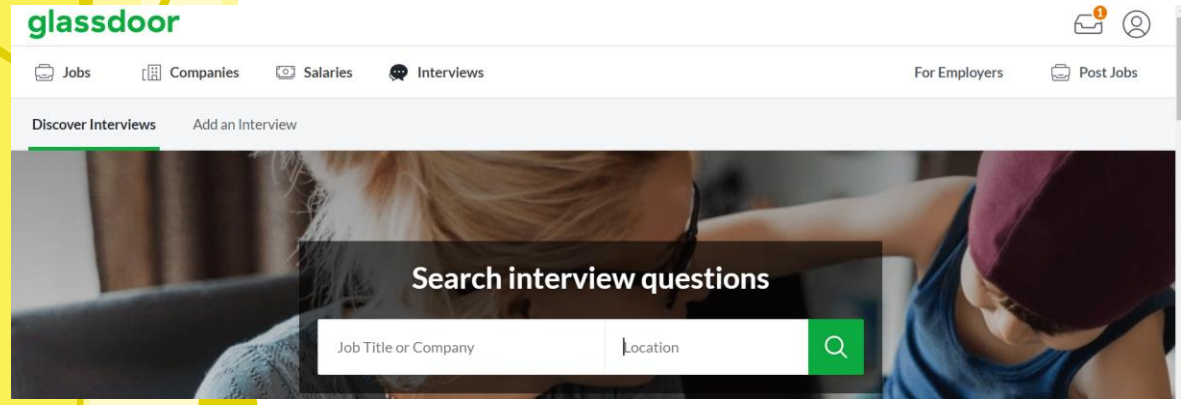
- Consider exploring work with National Labs if you have an interest. Some internships may get you a Government Security Clearance, which will come handy in subsequent internship searches.

Pointers for International Students

- Prior to the career fair look at the list of companies and double check against an H1-B database. Example: https://h1bdata.info/index.php

Balancing academic and career planning

- You will be quizzed on course material in your industry interviews so it is most efficient if you master the material in the class.
  - Data Structures and Algorithms will show up in technical interviews in most companies.
  - Interviews for jobs requiring Java will quiz you on Object Oriented Programming.
  - Databases is a highly prized skill in industry.
  - Theoretical background knowledge is important.
- Undergraduate Teaching Assistantships and Undergraduate Research are highly valued, both of these are a heavy time commitment.
- Interviews almost always get scheduled in the same week as big exams and projects, the recruiters have a little flexibility but not a whole lot.
- 12-15 credits, more personal projects, more competitive programming practice.



GeeksforGeeks

The First Year

Students start in CS, are settling into Purdue, experiencing independence. Some students are coding for the first time, others are coming in with high school coursework and yet others are coming in with start-up experience.

Commitments

Semester 1

- CS 180 Object Oriented Programming (Java)
- Some Math (Calc 1,2, 3 or Linear Algebra or other advanced Math).
- Non Technical Classes.

Semester 2

- CS 182 Foundations of CS (Discrete Mathematics)
- CS 240 C Programming
- More Math/Stat/Lab Science etc.
- Non Tech Classes

Personal Project – One complex project is better than many simple ones.

- SDEs and PMs: Web App /Mobile App
  - Front End/Back End Technologies
  - Android/ iOS App Development
- Data Scientists: Python/R/Excel/Tableau/SAS/Scala/Tensorflow
  - Practice with open to public datasets: https://azure.microsoft.com/en-us/services/open-datasets/catalog/
- Product Management Vocabulary and Conceptual Knowledge
  - Books: https://productschool.com/blog/product-management-2/top-most-read-books-by-product-managers/
  - Courses in Coursera/EdX/UDemy

Allied Skills

GitHub

Commit code every day

Make your repositories private

Publicize your contributions

LinkedIn

- Set up an account with the same email ID you use for GitHub.
- Fill out the various segments.
- Look at the Linked In Profiles of other students from Purdue Computer Science.

Interview Preparation

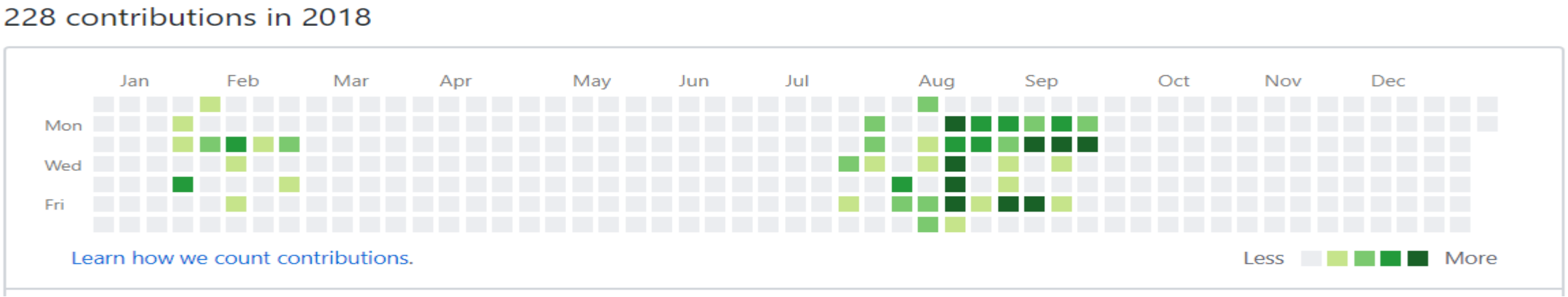
- Create a database of all interview questions on Object Oriented Programming after CS 180. Practice answering those verbally.
- Create a database of all interview questions on C Programming, practice answering those.
- Prepare a list of behavioral interview questions, practice them.
- Resources (Websites): Glassdoor Interview Questions, Geeks for Geeks.

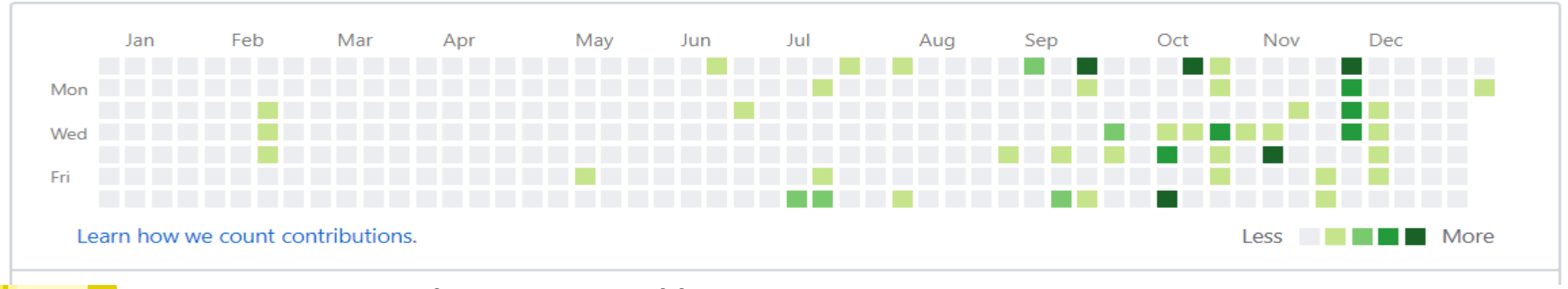
Competitive Programming Practice

- Practice Hackerrank/Leetcode Problems in Java and/or C and or C++.
- Start working through problems in the book “Cracking the Coding Interview”.
- Practice typing code live and practice hand-writing clean-error-free code.

Github Contribution Levels

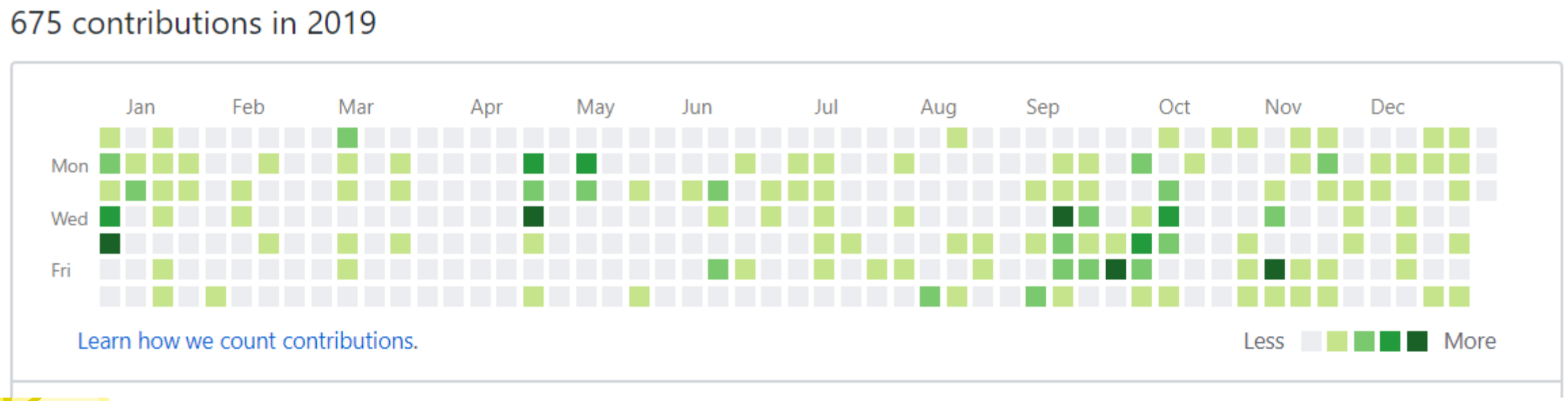
Student interned at HP Enterprise after their first year at Purdue





Student interned in Salesforce at the end of first year at Purdue

Sophomore's Github prior to getting selected for a Google Internship. Student was consistently committing code to GitHub and preparing for tech interviews with Leetcode etc.



The Second Year

Students get experienced in Data Structures and Algorithms, Computer Architecture and Systems Programming. The Shell Project in the Systems Programming class gives students a glimpse into the quantity of code they will need to write as professionals and the time spent debugging.

Commitments

Semester 3

- CS 250 Computer Architecture
- **CS 251 Data Structures and Algorithms**
- More Math/Stat
- Non Tech classes

Semester 4

- **CS 252 Systems Programming (Brutal!)**
- Math/Stat/Lab Science etc.
- Non Tech Classes

Personal Project – One complex project is better than many simple ones.

- SDEs and PMs: Web App /Mobile App
  - Build more features, something more ambitious.
  - Consider taking a VIP or EPICS class with a programming focused project.
  - Actively prepare for the interview process.
- Product Management: Actively prepare for PM interviews and case studies.

Allied Skills

Update and upload your resume, apply to jobs on myCCO.

UTA

Fill out the application

Write to the professor teaching the class in the relevant semester.

Research

Consider joining large research focused teams of undergraduates such as ENGR VIP.

GitHub

Hopefully your Github is hyperactive and full of commits. Keep that going. Include your email on your GitHub account.

LinkedIn

- Use Linked In to search for most recent jobs filtered by date.
- Set LinkedIn, Glassdoor and other job boards up to receive updates as soon as a company you are interested in posts a job.

Interview Preparation

- Practice, practice, practice!
- Practice for whiteboarding interviews.
- Prepare a list of behavioral interview questions, practice them.
- Resources (Websites): Glassdoor Interview Questions, Geeks for Geeks.

Competitive Programming Practice

- Practice Hackerrank (hard setting)/Leetcode Problems in Java or C or C++.
- Continue practicing with the book “Cracking the Coding Interview”.
- Practice typing code live and practice hand-writing clean-error-free code.

The Third Year

Students are done with the CS core and are mostly taking upper level classes.

Commitments

Semester 5

- CS 381 Analysis of Algorithms
- CS 300+ Track Class
- More Math/Stat/LabSc?
- Non Tech classes

Semester 6

- CS 354 Operating Systems
- Math/Stat/Lab Science etc.
- Non Tech Classes

Personal Project – One complex project is better than many simple ones.

- SDEs and PMs: More complex personal projects
  - Build more features, something more ambitious.
- Data Scientists: Python/R/Excel/Tableau/SAS/Scala/Tensorflow/Hadoop/Big Data
  - Practice with open to public datasets: https://azure.microsoft.com/en-us/services/open-datasets/catalog/
  - Consider joining the Data Mine Learning Community.
  - Actively prepare for the interview process.
- Product Management: Actively prepare for PM interviews and case studies.

Allied Skills

Update and upload your resume, apply to jobs on myCCO.

UTA

Fill out the application

Write to the professor teaching the class in the relevant semester.

Research

Consider finding a research mentor by looking at the research page.

Return Offers

If you have a return offer from a company you worked for over summer, if the offer has a short turnaround time, don't be afraid to say no.

LinkedIn

- Use Linked In to search for most recent jobs filtered by date.
- Set LinkedIn, Glassdoor and other job boards up to receive updates as soon as a company you are interested in posts a job. Apply through the company website.

Interview Preparation

- Practice practice, practice!
- Practice for whiteboarding interviews.
- Prepare a list of behavioral interview questions, practice them.
- Resources (Websites): Glassdoor Interview Questions, Geeks for Geeks.

Competitive Programming Practice

- Practice Leetcode problems.
- Continue practicing with your books..
- Practice typing code live and practice hand-writing clean-error-free code.

The Fourth Year

Students are done with the CS core and are mostly taking upper level classes. Interview prep or graduate school prep is on in full swing.

Commitments

Semester 7

- CS 352 Compilers
- CS 300+ Track Classes?
- Maybe a graduate class?
- Non Tech classes

Semester 8

- CS 471 AI or CS 373 Machine Learning?
- Track Classes, maybe a graduate level class?
- Non Tech Classes

Personal Projects – Hope you have a few good projects by now.

- SDEs and PMs:
  - Build Build Build!
- Data Scientists: Python/R/Excel/Tableau/SAS/Scala/Tensorflow/Hadoop/Big Data
  - Research Experience
- Product Management: Actively prepare for PM interviews and case studies.

Allied Skills

Update and upload your resume, apply to jobs on myCCO.

UTA

Fill out the application

Write to the professor teaching the class in the relevant semester.

Research

Consider finding a research mentor by looking at the research page.

Return Offers

If you have a return offer from a company you worked for over summer, if the offer has a short turnaround time, don't be afraid to say no.

LinkedIn

- Use Linked In to search for most recent jobs filtered by date.
- Set LinkedIn, Glassdoor and other job boards up to receive updates as soon as a company you are interested in posts a job. Apply through the company website.

Interview Preparation

- Practice practice, practice!
- Do not be afraid to fail. You need to fail to be successful.
- Practice for whiteboarding interviews.
- Prepare a list of behavioral interview questions, practice them.
- Resources (Websites): Glassdoor Interview Questions, Geeks for Geeks.
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Competitive Programming Practice

- Practice Leetcode problems.
- Continue practicing with your books..
- Practice typing code live and practice hand-writing clean-error-free code.

International Students: CPT and OPT

- CPT – Curricular Practical Training is associated with internships. Student take CS internship classes such as CS 18300, CS 18400. UPDATE Post COVID-19 – Max 2 CPTs permitted.
  - International Students and Scholars website:
  - https://www.purdue.edu/IPPU/ISS/Student/F1/cpt.html
  - CS International Students' website. https://www.cs.purdue.edu/academic-programs/international-students.html

- OPT – Optional Practical Training is associated with full time jobs. Application window begins 90 days before graduation.
- https://www.cs.purdue.edu/academic-programs/international-students.html

The Co-Op Program

- Housed under Office of Professional Practice.
- 3 session co-ops, at least one needs to be during a semester.
- At least two of the three work sessions need to be with the same company.
- The company needs to be on the approved Co-Op employer database.
- Students will sign up for CS internship courses such as CS 18300, CS 18400 etc.
- For domestic and international students.
- https://opp.purdue.edu/Co-Op%20Pages/3-Session%20Co-Op.html

CS Undergraduate Research and Career Support Desk

Offered by: **Ranjani Rao, CS Undergraduate Research and Career Development Specialist**
When**: Fall 2021 - Mondays and Thursdays 1:30-3:00 p.m.***
Where: **Lawson Commons***
Who: **For CS and CS-DS Majors.**

I am happy to help with:

- Short Resume Reviews, especially for CS 191, I also do resume reviews for sophomores, juniors and seniors! (Please bring a paper printout of your resume.)
- Quick questions about Undergraduate Research.
- Quick questions about the CS Co-Op Program.
- Quick career related questions.
- Short LinkedIn Reviews
- General questions about applying to graduate school.

***Time and location are subject to change in case of Company Days and Departmental Events in LWSN Commons, for current updates please check: https://www.cs.purdue.edu/calendar/index.html**

Questions?