Intern-ke-Fundae - Minutes of Meeting

ACES-ACM IITD

28th August 2024

ACES-ACM IITD organized the 2nd-3rd year interaction session 'Intern-ke-Fundae' at LH318 on 28th August 2024. Following are the event minutes prepared by Priyanshi, Arinjay, and Samarth.

1 Why Intern?

- IITD NGU Design Credits for 2nd year Summer Intern
  - Completing design credits is a degree requirement.
  - How you choose to complete these credits is up to you; refer to Courses of Study for more information.
- Traveling opportunities
- Fun experience
- Learn technical things / soft skills with real hands-on experience
- Great CV point
- Networking opportunity
- Some interns also provide a stipend (monetary compensation)

2 Where?

- SURA - Under a professor @IITD-Limited spots
  - This is a recognized research program.
  - You receive a project grant and project stipend.
  - You receive a formal recognition from IITD for completing SURA.
  - Limited spots and selection process, only one team under one professor.
  - Visit IRD for more info.
- Informal Project under some professor in IITD or some other university
- Open Source Development - GSoC, SWE Projects, etc.

- Work @ Startup - Use LinkedIn / Contacts / Cold email startups, PoCs, and get an opportunity to intern at a startup or work on nascent codebases.
- Indian Institutes Profs - IISc, IISERs, IITs, ISI, CMI (Math and Theory CS people generally go here)
- Corporate interns via OCS - Phase I (Jane Street) done. Watch out for Phase 2 interns.
- Corporate intern through self - Startups! Keep realistic expectations. Connect with startups and people on LinkedIn.
- Off-Campus: Keep realistic expectations. You might not get many responses in your second year.
- Match your interests with professors. Look at their work and approach if there is a common interest base.
- University Programs by Tech Companies (especially for girl students) - UBER (She++), Microsoft (Engage), Flipkart (GRID), Google (STEP).
- University Research programs - Formal application in contrast to cold emailing a professor. More structured.

3 CV Preparation Tips

- Make it Professional - Make a LaTeX CV on Overleaf! Easy to learn.
- Sections: College CGPA and School, Scholastic Achievements (JEE Rank, Olympiads, KVPY, NTSE, Top 7%), Course Projects / Projects (COL106-DSA COL215: frame the assignments as Course Projects), Courses Done, Technical Skills (HTML/CSS are not programming languages :P, keep these small things in mind). Write things relevant to the professors/companies you are targeting and make multiple CVs for different fields if needed.
- Work Experience - Again, write relevant things (For Research Intern, professors look more into projects done than experience). If you have done something after the first year, include it here.
- Keep it one page.
- Keep it relevant to the domain and make it parallel and aligned to the field you're applying to.
- BSW Samples
- Get it reviewed by your peers and seniors.

4 Foreign Research (No program)

4.1 Akshat (Inria Sophia Antipolis)

- INRIA has been taking IITD students for the past 3 years.
- ABS and Titane groups prefer interns from IITD.
- Mail as early as possible.
- Hostel-like experience as accommodation was provided.
- Took COL726 (by Prof. Amit Kumar) in the 4th semester (preferred).

4.2 Purushottam (University of Saarland)

- Besides CG, CV, and timing, luck matters (passport does too); ensure you have a valid passport.

Takeaways from the Intern:

- LOR (Do ask if reasonable work is done)
- Contacts abroad
- Good photos! (and break from pollution)

Advice:

- Start early
- Got intern in February
- Prepare a spreadsheet of professors for targeted mailing (topic-wise)
- Don't schedule emails (may go to spam)
- Don't ignore interdisciplinary fields, apply to fields with less competition, like newer areas of research.
- Reapply to places where your seniors have interned.
- Get passport ready.
- Don't give up!

4.3 Anubhav (MPI SWS) (CS5)

- Why intern?
  - Problem-solving skills, exposure to research methodologies, work with experienced people (networking)
  - Potential for publication. Duration exceeds 6 weeks. The project is still ongoing and is expected to be completed by December.
  - Explore different fields
- When to apply?
  - Luck based; depends on if the group has a vacancy at your time of application.
  - Start early.
  - Started around end of October. Did not receive a reply from NUS (they were not expecting mails in October).
  - After mid-October, searched for corporate internships through LinkedIn.
  - End of October - CISPA (APAC): directly mailed the professor, interview in October, professor expected to know everything about his work. Received a mail in January (after securing an internship at MPI).
  - Show the professor how you are relevant to his/her work.
  - Had an interest in deepfakes and how to remove fake news. Suggested ML. MPI does not take second-year interns. Students with DR and Olympiad experience have a chance.
- Experience
  - `https://anubhavpandeyiitd.blogspot.com/` Refer to this blog for more information.
  - Read the materials provided by the professor.
  - Discovered that the team was using generic methods.
  - Dual degree: Definitely go for it. If in B.Tech, then also consider it.

5 Foreign Research (program)

5.1 Anushka (EPFL)

- Always wanted to try out research. Good experience.
- Apply in areas that relate to courses done in college.
- Program- Application around December.
- Internships through programs have a greater workload.
- Had an internship in the field of Computer Architecture- Systems.
- Working on a compiler to convert CPP to VHDL (optimization).

- Had to do a lot of work (had no choice to work less as selected through program).
- It is a good idea to do research if you want to continue higher studies.
- Fun experience in Switzerland.

5.2 Arunabh (CISPA)

- Not through cold-mailing.
- Research program, many people did not know about it, so competition was low.
- Suggestion: Most people don't know much about domains of CS.
- Had a choice of 7-8 professors.
- Had the choice of two topics and selected Fuzzing (automatic test generation), although had no idea about it formally, but it turned out to be a great thing.

Timeline:

- Prepare CV
- SOP
- Waited till January
- Getting NOC from CS Dept is a bit tedious
- Apply early for VISA, book flight tickets early

Experience:

- Relaxed work culture
- Lots of reading
- Great travel experience/lots of photos
- Reach office by 8 am
- Prepare food and clean utensils
- More responsibilities
- Financial independence
- You can spare time for preparation (have company of friends)

Advice:

- Communicate with professors and PhD students properly. Bother them for your doubts and don't feel disheartened or useless.

6 Foreign Research (OCS)

6.1 Poojan (CQT, NUS)

- Attended IBM Quiskit in the first-year summer break and ACM Winter School in the second-year winter break.
- Took COL866 (Quantum Computation) in 4th semester.
- Start right now if you have an interest in research.
- Applied through phase 2 OCS; CV shortlisting and brief interview took place.

7 Remote Research

7.1 Meghana (University of Pittsburgh)

- Worked remotely.
- Process of Application (General):
  - Find your interest (which particular field of CS: AI, ML, Architecture to find professors).
  - Go to CS Rankings (to find top universities sorted by topic).
  - Find relevant professors and email them.
  - Select professors from universities with a ranking <20 (don't go for topmost).
  - Read their work thoroughly.
  - Mention why you are choosing the professor, tell them about your interest in their work.
  - Attach CV and send.
  - Mails sent to around 30 professors.
  - Meetings are conducted after replying to the mail.
- Why research?
  - Not sure about research. Aimed for corporate. Applied for research based on seniors' recommendations. Must try (in 2nd year winter or summer break).
- Why remote?
  - OCS tests for 3rd-year intern after summer break. Needed time for prep. On-site internships take time.
  - Mailed late (in January), received response in March; thus not possible to travel.
- Advice:
  - Start early, make a CV, and mail professors (higher chances of reply). Choose as per your interest.
  - Had interest in Biology, so research in that area was nice.

- Work:
  - 3 weekly meetings (1 hr), self-learning, worked directly under the professor, duration depends on the professor, still continuing on the project.
  - Based on the professor, if you work under a PhD student as mentor (less open-ended).
  - Professors don't expect much; require effort from your side. They usually take a short session after replying to ask things in CV and verify them.
- Advantages of remote:
  - More time for intern test.
  - Stay at home.
  - Figure out if you have an interest in research.
  - LOR from professor / offer for 3rd-year intern.
  - Findings of intern can be used to publish paper. Explore (but don't sacrifice 3rd-year intern test).
- Disadvantages:
  - Tedious process.
  - Remote intern Less work.
  - Behavior matters; you might be removed mid-way.
  - It's not very important for corporate CV shortlisting.

8 Non-SURA Research

8.1 Pritesh (IITD)

- Did not look for an intern till December.
- Did COL719 in 4th semester.
- Easy to get a project.
- Time flexibility more.
- Stayed and worked from home.
- More time for intern preparation.
- Tasks are time-consuming, extending longer than 2 months.
- The stipend is low.
- Lots of prerequisites had to read and learn a lot.
- Still working on the project. Results are done, but papers are yet to be published.

9 SURA

9.1 Vishakha (IITD)

- Why SURA?
  - Seniors advised research.
  - Needed more time for 3rd-year intern.
  - Could stay at home and work.
  - Did not choose remote intern: less interaction.
  - CV Point.
- When?
  - Notifications came in January.
  - Chose professors working in your area of interest.
  - Found ML profs and emailed (with basic LaTeX CV).
  - ML project under Prof. Rahul Garg.
  - Prepared ML model to classify brain stroke using retinal images.
  - Meeting with AIIMS doctor.
  - Project proposal, connected with PhD student.
  - Only one group can work under a professor, and selection is based on the project proposal.
  - Committee takes interview.
  - Work is in progress, expected in October.
  - Had to read research work; less data was available.
- Advantages:
  - You know professors.
  - Did not help much in interview, but worked for others.
  - No expenses.
  - Ample time for intern prep.
  - Receive LOR.
- Disadvantages:
  - Less exposure.
  - Quality of work is important; might seem to be a burden if no interest comes in the field of work.

10 Female Program

10.1 Ishika (Google STEP)

- SDE role.
- Did SURA simultaneously.
- Does not come on-campus at IITD.
- Off-campus is available to girls only.

11 Startup Tech

11.1 Vedant (IDeaS - A SAS Company)

- Why?
  - Wanted to focus on 3rd-year intern.
  - In hometown. Company had a relaxed schedule.
  - CV point (adds a new section in CV), good impression.

12 Corporate non-Tech

12.1 Jahnabi (Aditya Birla Group)

- Data Analytics Intern.
- Found research boring. Had prior experience in research in winter of 2nd year.
- Applied for research in management institute. Received intern in Hyderabad, not feasible.
- Contacted HR of ABG, appeared for interview, coincided with Google Step Interview.
- First interview: HR (expressed interest in Finance, liked project (quant related)).
- Second interview with manager (10 min).
- Discussion about projects.
- 1 week long process.

12.1.1 Work

- Worked at ABMCPL- OAB.
- Prepared backtests for trends following option strategies.
- Developed strategy analysis tools.
- Received LOR and return offer.

12.1.2 Advice

- Tweak your project descriptions according to the need of the job. Use COP projects.
- One was a game-based project, web development projects.
- Companies weigh in on the purpose (sell your project).
- Got 3rd-year corporate intern in Bain.

13 Corporate Tech

13.1 Rajarshee (Paypal)

- Software Development intern.
- No interest in research.
- Started in December through LinkedIn.
- Applied to the career portal.
- Coding Test followed by Technical and Management Interview.
- Asked about projects and fundamental computer science questions.
- Learned the company's tech stack and then took up the project.
- Did two projects:
  - Built a chatbot.
  - Game for employees (as part of Employee experience team).

13.1.1 Disadvantage

- Demanding; less time for intern preparation (duration was 12 weeks).

13.1.2 Advice

- Be active on LinkedIn and check the OCS portal.

QnA

- **What should CS5 students do?**
  - Keep research as a backup and try to do a corporate internship in 3rd year (have good CG).
- **Expenditure for foreign intern?**
  - Akshat (Non-program): Net expense was zero, tried for Charpak fellowship but could not get it.

– Arunabh (Program-CISPA): Stipend of 2200 euros a month; spend less on travel and flight (can save approx. 20000).

– Poojan (CQT, NUS): Accommodation was provided.

– Anushka (Program-EPFL): The net expense was zero; travel and stay were covered.