Interview with Xiu Feng

Part 1: Job Content and Responsibilities

Q: We'd like to first understand how you got into this research field during your student years and eventually ended up doing your current job?

A: Let me briefly introduce myself. I graduated with a degree in Biological Sciences from China University of Geosciences. Then I took the entrance exam for graduate school and was admitted to the Institute of Hydrobiology, where I followed the integrated master's and PhD track. After that, I naturally stayed here to work. I think the process really depends on personal choices. In the past, my thought was that if you intend to pursue further studies and engage in scientific research, then go ahead and apply for graduate school and a PhD, focusing on a specific research direction or field. But if you don't plan to stay in research long term or feel it's better to enter the workforce earlier, then going straight to work after undergrad is also completely fine. It depends on your personal plan and goals—whether you want to be a scientist or prefer to gain social experience earlier.

At the master's level, many people feel caught in between. It's quite normal to decide after getting a master's whether to pursue a PhD. During the master's stage, you may discover whether research suits you or not. If not, it's better to enter the workforce early. If you think you can keep going, then continue with a PhD for further studies.

Q: We heard before coming here that the Institute of Hydrobiology has relatively high academic requirements for talent—basically a master's or higher, mostly PhDs, right?

A: Yes, that's right. This is now the general situation in research institutes across China. Whether it's university professors or research personnel at institutes, most positions require a PhD.

Part 2: Academic Studies and Further Education

Q: Just now you mentioned that you went directly from Geosciences University to the Institute of Hydrobiology for grad school. So that means the Institute of Hydrobiology can be a target institution for master's applications, right? About how many students do you admit each year? Have any students from our school come here before?

A: Our institute recruits new students every year. I'm not sure about the exact number now, but my cohort was during an expansion year—we had over 100 new students. I think it's similar now. Students come from all over the country, from all kinds of universities. We do have students from

top schools like yours, Huazhong University of Science and Technology, and many from key universities in the province as well. It mainly depends on individual exam scores and interview performance. Students recommended for admission without exam from top universities tend to be more common.

Q: Have you interacted with students from Wuhan University? When we interviewed some people working in companies before, they mentioned that students from Huazhong University of Science and Technology and Wuhan University differ in workplace performance—for example, HUST students are more practical and efficient at completing tasks, while Wuhan University students might excel more in communication and innovation. What do you think?
A: I personally haven't noticed any obvious differences. What you mentioned may be more about general impressions of the two universities. It's also possible that since Wuhan University is stronger in the humanities, they might stand out more in communication and humanistic aspects.

Q: Could we ask for some advice for undergraduates like us? Whether we plan to work directly or pursue further studies, do you have suggestions based on your own experience? For example, how to choose a direction or decide whether to go for graduate school or a PhD? Because our current vision and understanding may still be limited, and we're afraid of making the wrong decision.
A: For the biology major, the percentage of students going to graduate school is still quite high. Most of your senior classmates probably chose to pursue further studies too, right?
Q: Yes, almost none went straight into work after undergrad.
A: That's right. For students from top universities like Tsinghua and Peking University, many go abroad or are recommended to stay for graduate studies. These excellent students mostly take the further education path.

Part 3 Differences Between Research and Work

Q: If we choose to further our studies, like pursuing a master's degree and joining a research institute like the Institute of Hydrobiology, will there be aspects that are difficult to adapt to initially? Such as learning styles, communication styles, etc.?
A: There will definitely be some differences. During your undergraduate studies, you had a broad exposure to various fields like zoology, botany, and ecology, and you conducted experiments and internships. However, in graduate school, your research group's focus will largely follow your advisor's direction. The purpose of further study is to conduct more in-depth research in a particular area.

Although learning methods may change, many fundamental methods are still universal. In the later stages of biological studies, there is quite a reliance on mathematics, data analysis, computers, and English proficiency. Strengthening these areas is essential during graduate studies.

In graduate school, you will have a lot more interaction with your advisor compared to your undergraduate days when you could leave after class. Besides your advisor, you will also have much communication with senior and junior colleagues in the lab. As long as you are proactive, your advisor and lab colleagues will provide you with a lot of advice. Mutual communication is also very important for deeper research direction.

Q: Do you have any advice on communicating with advisors or superiors in companies? Given that we currently have limited lab experience, how should we interact with our advisors? And how will communication differ when we enter a company in the future?

A: This actually depends on whether your advisor has ongoing projects. If he has multiple projects, he might involve you in several directions and assign work based on your interests; if projects are limited, you might focus on one direction from the start.

Whether in a company or a research institution, being proactive is crucial. If you have questions, you should boldly bring them up. Research tends to be relatively free and flexible. Advisors are generally willing to communicate, and compared to companies, there are not such strict hierarchical boundaries. You can directly communicate with your advisor if there are any issues, and typically there are no major problems.

Q: I heard that after completing your postdoc, you stayed at the research institute to continue related research work. Are your current job responsibilities aligned with your previous research focus?

A: They are mostly related. During my master's and doctoral studies, I worked on genetic heterogeneity. Have you heard about it? At the time, my work was focused on molecular and genomics. My current job mainly involves molecular ecology, which still includes genetics and genomics, but leans more towards the ecological direction. It’s essentially a shift in specific research focus, but it still revolves around molecular biology and genetics, maintaining continuity.

Q: Did you encounter any difficulties or challenges in understanding the new field when you changed focus? This is similar to how we might face challenges when entering a company after graduation. How did you adapt and transition?

A: There was definitely an initial period of adjustment. After changing directions, there is a need to learn a lot of new information, but as long as you are willing to learn, it's okay. You'll find that different directions actually have intersection points, with many new, meaningful, and innovative

concepts to explore. The key is whether you can integrate your previously acquired skills with the new content.

Q: I'd like to ask a more practical question. We are from Huazhong University of Science and Technology. If we complete a master's or Ph.D. and want to work at your research institute, is the competition intense?

A: The competition is indeed intense. Regardless of which school you're from, you'll face fierce competition, even if you're from Huazhong. Our recruitment process is detailed; it's not just about your educational background but also your achievements. Having papers, project experience, and the ability to conduct independent research are crucial. Furthermore, positions in universities and research institutes are fairly saturated, particularly in popular cities and institutions. You need to be prepared and enhance your research competitiveness.

Q: You completed your master's and Ph.D. as a student at the institute and stayed on to work. Do you think the transition from doctoral studies to work was significant? Are there noticeable differences in daily work processes or handling affairs?

A: There is definitely a distinction. As a doctoral student, you are still a student, although you are involved in research, it's a "passive participation." You focus on the topic itself, conduct experiments, and write papers. During that time, you have an advisor and don't have to worry too much about project funding or personnel arrangements. But once you start working, you become a "project leader." You need your own research philosophy and direction, and you have to write proposals, seek funds, organize teams, and coordinate resources, which are fresh challenges. However, the research methodology remains relatively unchanged, utilizing the familiar ideas and tools, although the research subject might change. Ultimately, it's about shifting roles from being a "participant" to a "leader."

Q: It's mainly about moving from being a team member to being a leader, also considering the development of the entire project, including grant applications.

A: Exactly. Once you become a leader, the responsibility increases. You have to think more comprehensively.

Part 4 Development and Employment Prospects in Biology

Q: We often hear in class that the country has identified biology as a key area for future development. This includes mentions in general courses and policies and current affairs classes. However, teachers also say that our field is currently somewhat sluggish compared to popular

fields like new energy and AI. Where does this lag stem from? Is it due to factors like policy support, research funding, or the industry itself? Why do some say this field lacks prospects?

A: This is an excellent question. I believe the primary reason is that we started later and our foundation is relatively weak. Therefore, we still face bottlenecks in many key technologies. However, regarding future prospects, I believe they are very promising. AI has developed rapidly mainly due to positive timing, with capital, technology, and policies directed towards it. Our field of biology is also progressing; many innovative drugs, vaccines, and synthetic biology fields are advancing quickly. It's just that this field indeed has a longer development cycle, especially in biomedicine. Developing a new drug—from cell experiments and animal testing to clinical phases one, two, and three—can take a decade. So, the visible results are few, but that doesn't mean there isn't accumulation.

Moreover, as people's living standards improve, there's an increased focus on health. There is growing space for the development of the medical and health industry. Therefore, while it may not be as hot as new energy or AI currently, biology offers a steadily progressing path with substantial future potential.

Q: We are still in the undergraduate stage, and our perspectives are limited. When choosing our major, society's assessment of biology wasn't very high, with some even likening it to a "sunset industry." But I think this might not be accurate. As you've said, biology still has a future and may even become a new hot field like new energy or AI.

A: You're correct; biology will undoubtedly become increasingly important in the future. If you don't plan to work immediately after graduating from your undergraduate program, then during further studies or while pursuing advanced degrees, you can consider where your interests lie. Like "Jeet Kune Do," you should know where to strike. I work in biomedicine, which is currently very broad with numerous opportunities. You can pursue drug development, medical devices, data analysis, among other directions. Biology offers an expansive range of pathways; it depends on what you excel at. For instance, if you are good at programming and data, you can get involved in bioinformatics; if you prefer experiments, you might continue with drug or disease mechanism research; if interested in industrialization, you can enter a company. Honestly, resources and personnel in medical-related biological research are more extensive in medical schools. That's a fact.

Q: When taking the biomaterials course, the teacher mentioned that achieving technological breakthroughs in biomedicine is truly challenging, especially moving from cell to animal testing

and then to clinical trials, which involves a complicated process. In practice, not many results are widely implemented and applied, indicating a "long and arduous road."

A: You're right; the field of biomedicine is indeed tough. Research is inherently challenging, whether you pursue an academic career or join a company, as long-term accumulation is needed. However, the advantage is that there are plenty of suitable organizations in biomedicine. Aside from research institutes and universities, numerous pharmaceutical companies are available. You could choose to pursue a Ph.D. and conduct research or enter a company to engage in product development, regulatory submissions, data analysis, among other roles. Particularly, lab collaborations between pharmaceutical companies and hospitals have been growing rapidly in recent years, widening your options. The agricultural biology sector also has its development opportunities, depending on your personal interests and future objectives.

Part 5 Cross-major and Career Development

Q: Do you know anyone who began in a different field but later transitioned to biology and excelled? Or any classmates who studied biology but later switched to another industry and did very well?

A: Yes, there are. During our undergraduate years, most transitioned out rather than into biology. In our class of thirty, about twenty shifted to other fields later. During graduate studies, there were some who transitioned from other fields into biology. In our research group, there's a Ph.D. student who majored in computer science at Renmin University of China but later joined our group for graduate studies. His strong skills in mathematics and programming make him particularly advantageous in data analysis within our group. Individuals with such interdisciplinary backgrounds often develop unique research paths.

Regarding biology professionals transitioning to other industries, it's most common among undergraduates. Some graduate students also change fields, pursuing careers in management, starting businesses, or even venturing into sales and marketing. The transition is less common at the doctoral level. Generally, those who pursue a Ph.D. are passionate about research and more inclined to continue in academia. Of course, some Ph.D. graduates also join companies in technical roles or technical management, which are also plentiful.

Q: Are there any master's or doctoral graduates working in government entities, like applying for civil service or joining public sectors?

A: Due to the current economic situation and pandemic impact, many people have indeed ventured into civil service or public sector roles. Among master's graduates, it's quite common. If

a Ph.D. graduate can enter a public sector, it offers a significant advantage. However, the competition is intense, requiring passing exams and interviews without exception.

Q: Would you be able to provide us with the contact information of a colleague or friend working in related fields afterward? We promise not to disturb them and are just conducting information gathering as part of an assignment from our teacher.

A: Sure, that's not a problem. There are many professors in our research institute. If you need it, I can send you a few contacts via WeChat, including their research focus and positions.

Q: Thank you, professor! It's a small assignment from our class, and we've made a little student card. Although it's not professional, we're learning how to connect with professionals. This semester focuses on stepping out of the campus to see the real industry and world, which is truly invaluable for us.

A: That's great to hear; such courses are very meaningful. Engaging with these aspects now gives you a real advantage. Keep it up!