

林一平教授： How to Enhance Your Research Career?

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本院資訊與工程學系於 2021 年 10 月份例行舉辦的「Coffee time」，邀請到林一平教授分享主題「How to enhance your research career?」。講述進行資訊科技專業領域研究時，思考「如何增加對社會的實質影響力」與其重要性，透過與相異領域人才跨域合作，產生更廣闊的技術應用範圍和未來發展可能性，提升技術能見度的同時，實質回饋並改變人類社會。希望經由本場線上與實體並行的講座內容分享，提供資工系的老師們更多的交流與學習機會。

在講座前半部，林一平教授以自身經驗談及發展 research career 的不同階段。專業領域研究並非僅能侷限於學術領域的貢獻，思索如何將成果、知識與經驗的累積實際應用於生活場域，將是「學以致用」層次提升的關鍵要素。而擴大研究應用影響力的核心思維便是「跨出舒適圈」，尋找不同領域的合作夥伴進行應用發想。林一平教授舉了自身參與智慧農業計畫的經驗為例，如土壤的溫度、濕度、導電度和 PH 值等特性，各式農藥的選擇，研究和有線通訊相關的「通訊人」對於這類專業並不具備知識架構，但具備生物科學專長的合作夥伴卻能給予關鍵協助，提供注意要點引導。使得人工智慧、物聯網、大數據等各項前瞻技術得以發揮所長，精準實踐「智慧農業」發展初衷，以及其所追求的減輕農場作業負擔、減少人工勞動力需求等特色目標。透過跨領域的人才協作，攜手擴大專業技術的應用層面與影響力，達成有效率之經營管理模式的同時，生產符合市場消費者需求的農產品。

林一平教授於分享過程中亦鼓勵教師積極申請獎項，增加交流機會。申請獎項存在著眾多優點，一來可以作為鑑定標準，知悉得獎要求與實際研究成果所存在的差距。此外，除去得獎目的，一節一節攀登如階梯般的獎項目標，研究者可以此機制來檢驗自己的研究，不同的獎項象徵「達到某特定水平」的判斷標準。再者，獎項的目標設定可以作為做研究時的推進動力，除了先前提及可用以評估研究成果，以及未來努力方向的特性，若有得獎之企圖心，研究者需要將研究結果以系統性的方式進行包裝，多方思考實際應用的面向，不論得獎與否，能夠「放下高度集中的精力，停下來仔細思考」的過程是必須且重要的；同時可以檢定自身「是否有將力氣花在正確的地方」，避免陷入事倍功半的困境而不自覺。「找一個獎項當作你的目標，然後認真往前走，是否得到並不是重點。在這個過程當中看看研究是不是有很好的改進，力氣有沒有花在正確的地方，這才是最重要的部分。」林一平教授以此勉勵在座與線上的參與者們。

或許發展 research career 的不同階段有著不同的目標，但只要能掌握「貢獻實質影響力」的核心要旨；搭配上資訊科技研究者擁有知識與技術的優勢，無懼跨出舒適圈，尋找跨域合作夥伴，多接觸專業領域外的世界；同時積極申請獎項，定期檢定並精進研究成果，與領域翹楚交流，拓展自身視野。定能將理論帶入生活場域，為人類社會帶來極具深度及廣度的貢獻和影響。

Professor Jason Yi-Bing Lin: How to Enhance Your Research Career?

The "Coffee time" held by the Department of Computer Science, NYCU in October 2021 invited Professor Yi-Bing Lin to talk about "How to enhance your research career?" During the speech, Professor Lin indicated the importance of keeping "How to substantially increase impact on society" in mind while we proceed with the research in the IT field. It really means that we should consider what we can give back to the society to make it better, while we work together with talents coming from various fields through interdisciplinary collaboration to innovate a wider range of applications and future development possibilities as well as level up technology visibility. We hope that faculty of the Department of Computer Science will have more opportunities to communicate with others and learn from each other via the speech held physically and online today.

In the first half of his speech, Professor Lin talked about the different career stages for researchers on the basis of his own experience. The contributions of professional research can be demonstrated in a variety of forms and should not be restricted to an academic achievement. In other words, thinking about applying the accumulation of achievements, knowledge, and experience to daily life would be the key factor in progressing to the next level of "Applying what you learn to your work". The core idea of expanding the influence of research and applications is "Getting out of your comfort zone" and searching for innovative ideas with partners in different fields. Professor Lin took his own experience in participating in smart agriculture projects as an example: soil properties such as temperature, humidity, conductivity and pH value, as well as the selection of pesticides, are Greek to "communications people", who are specialized in wired communication. However, those partners with biological science expertise provide critical support and guidance with key points. The integration enables various emerging technologies such as artificial intelligence, Internet of Things, and big data to perform at their best to accurately achieve the original intention of the development of "smart agriculture", as well as its specific goals such as reducing farm operating costs and labor demand. Moreover, the collaboration of cross-disciplinary professionals would broaden the applications and the impact of professional technology to not only create an efficient business management model but also produce agricultural products that

meet the demands of consumer markets.

During his speech, Professor Lin also encouraged faculty to actively apply for awards to increase academic exchange opportunities. There are many benefits of applying for awards. First of all, it can be a good evaluation criterion to realize the gap between the award requirements and the actual research deliverables. In addition, apart from winning awards, researchers may use a number of ladderlike awards with different difficulty to investigate their research. Each award represents the evaluation criteria of "reaching a certain level". Moreover, setting target awards can become the driving force behind research. In addition to the properties such as evaluation results and driving force which we mentioned above, awards can push researchers to systematically package their research deliverables and think through the practical aspects related to the research if they have an ambition to win. It is mandatory and important to be able to conduct the review process in the middle to suspend a heightened state of concentration and then rethink carefully no matter whether you win or not. Meanwhile, researchers can do the self-check, "whether you have managed your energy well," to avoid getting caught up in the resource-wasting situation without knowing it. Furthermore, Professor Lin encouraged the participants offline and online: "Aim at an award as your target, and then move forward seriously no matter whether you get it or not. During this process, the most important thing would be examining whether the research has been improved and whether your energy has been spent in the right place."

Different stages of research career development may lead to various focuses. Nevertheless, commit yourself to keeping "the impact of substantial contribution" a core tenet and fully utilizing the IT knowledge and skills so as to fearlessly get out of the comfort zone and seek cross-domain partners to collaborate with, while proactively exploring the fields outside your expertise. At the same time, actively apply for awards, regularly evaluate and improve research results, communicate with leaders in the field, as well as broaden your horizons. All the efforts will definitely bring theory to practice and eventually have profound impacts and contributions on human society.