

2025
International Internship Pilot Program
in Taiwan

Final Report

Name : Kassym/Dameli

Internship Inst. : National Taiwan University (NTU)

Name of PI/Department/School : Ying Jer Kao/Department of
Physics/College of Science

Submission Date : 23.10.2025

Part I. Overview

■ **What is your intention to come to Taiwan for this internship?**

I am eager to join this internship because it represents both professional and personal growth opportunity. Professionally, I aim to strengthen my research and programming skills in machine learning for materials science. Personally, I'm excited to experience Taiwan's culture and work with people from diverse backgrounds, which I believe will enrich my perspective as a future researcher.

■ **Please describe your gains and experience acquired from this internship.**

During my internship in Taiwan, I gained hands-on experience with the CrystalFormer project, where I learned how machine learning can be applied to crystal structure prediction. I became more skilled in data preprocessing, feature engineering, and model evaluation. I also learned how to collaborate in a research group, communicate technical ideas effectively, and document results clearly. This internship strengthened my motivation to pursue further research at the intersection of AI and material science.

■ **Please describe your life in Taiwan, how to deal with difficulties?**

My life in Taiwan has been inspiring and full of growth. I enjoy the peaceful environment, kind people, and the culture of respect and collaboration. At first, I faced difficulties such as language barriers and adapting to new food and climate, but I dealt with them through patience, curiosity, and support from my colleagues and local friends. Each challenge helped me become more independent and confident.

■ **During the internship, what impressed you most and made you recommend the internship to your friends?**

I was most impressed by how welcoming and supportive everyone was, both in the lab and outside. I learned a lot not only about research but also about teamwork and cultural exchange. The kindness of people in Taiwan and the collaborative atmosphere made this internship a truly special experience that I would recommend to my friends.

■ **If there is any other similar chance for you to choose, would you like to participate in this program again? And why?**

Sure! I would gladly participate again. The internship allowed me to work on the interesting project, deepen my understanding of machine learning in materials science, and grow as a young researcher. The welcoming environment, helpful mentors, and inspiring research culture in Taiwan made this experience unforgettable and one I would love to repeat.

■ **Please describe during your internship, which PI and institute have you communicated or interacted with?**

Throughout my internship, I mainly communicated with Professor **Ying Jer Kao** and the research team at National Taiwan University. Our discussions focused on the CrystalFormer project, where I contributed to data preprocessing, dataset curation, and analysis. I also interacted with another lab member from Physics department to share progress updates during group meetings.

Part II. Research Finding

Subject	Description
Font	English: Times New Roman
Line height	1.5 times
Size	<ul style="list-style-type: none"> ● Title/ Your Research Topic: bold size 18 ● I, II.... : bold size 16 ● A, B, ...: bold size 14 ● Others: size 12
Paragraph	<ul style="list-style-type: none"> ● Please refer to the example format as below.
Chapters and Sections	<ul style="list-style-type: none"> ● I, A, 1, 1.1, 1.1.1, and so forth
Tables,	<ul style="list-style-type: none"> ● Figures and tables please follow the rule, such as Fig 1, Fig 2, Table 1, Table 2, and so forth. ● The titles of figures or tables please use Times New Roman size 12.
Abbreviation	<ul style="list-style-type: none"> ● Such as: Sustainable Development Goals (SDGs)
Reference (footnote)	<ul style="list-style-type: none"> ● Use APA format, size 10 ● Footnote example¹ ● Network resource footnote example²

¹ Author, A. A., Author, B. B., & Author, C. C. (Year). Title of article. *Title of Periodical*, xx(xx), xxx-xxx.

² Author, A. A. (Year, Month Day). Title of post. Retrieved from <http://xxx.xxx.xxx>

Example

(Title/ Your Research Topic)

I. ☐☐☐☐☐☐☐☐☐☐

A. 000000...

1. *****...
2. *****...
 - 2.1 &&&&&&&...
 - 2.1.1 cccccccccc...
 - 2.1.2 cccccccccc...
 - 2.2 &&&&&&&...
 - 2.3 &&&&&&&...
3. *****....
 - 3.1 &&&&&&&...
 - 3.2 &&&&&&&....

B. 000000...

1. *****...
2. *****...

Since my report includes extensive coding, I decided to prepare the final version in **Google Colab** to ensure that no detailed code segments are missed. The Colab notebook contains two separate links, each corresponding to different parts of the work. Here is the link to the final report that has been done throughout the research:

https://colab.research.google.com/drive/1zby0f3TM8WJrep_xU89Xu2G9S0KgQGzN?usp=sharing