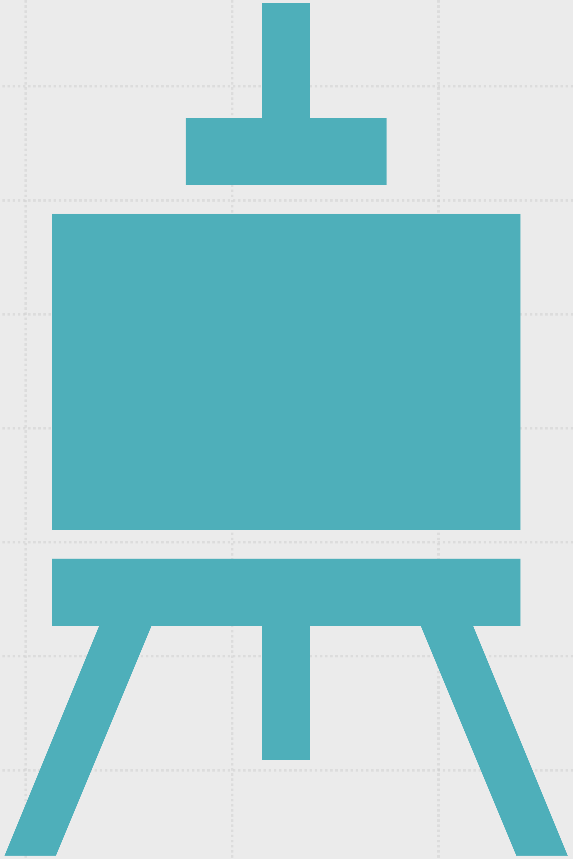
SRF (Summer Research Fellowship) Sharing Session

Wang Linjing

2023 SRF Participant, Major

Process for your SRF

- Find your supervisor
- Settle down your project
- Write a research proposal
- Selection interview
- Begin the research work
- Conclude your research results
- Final presentation



How to find your supervisor?

- Option 1: Approaching Your Course Professor
- Option 2: SRF website: https://www.scifac.hku.hk/current/ug/el/research/srf-orf

Research Opportunities from Science School / Departments

Research opportunities are available from the Science School and Departments for HKU Scienc undergraduate students. Students are encouraged to visit the following websites to know more abou teachers' research interests and approach them for research opportunities.

- School of Biological Sciences:
  https://www.biosch.hku.hk/about-us/our-staff
- Department of Chemistry:
  http://www.chemistry.hku.hk/pro_pgs_supervisors.php
- Department of Earth Sciences:
  https://www.earthsciences.hku.hk/current-students/undergraduate-students/research-opening-opportunities
- Department of Mathematics:
  http://www.math.hku.hk
  (at 'Research Groups' under the 'Research' section)
- Department of Physics:
  http://www.physics.hku.hk/students/Summer/Summer
- Department of Statistics & Actuarial Science:
  http://www.saasweb.hku.hk/research/research.php

Computational Mathematics

Members

- Prof. W.K. Ching
  Mathematical modeling, applied computing, optimization
- Prof. G. Han
  Coding and information theory
- Prof. M. Ng
  Applied and Computational Mathematics, Artificial Intelligence and Machine Learning, Data and Imaging Sciences and Scientific Computing
- Prof. X. Yuan
  Scientific computing, management science
- Dr. G. Li
  Numerical analysis, scientific computing
- Dr. Z. Zhang
  Scientific computation, biomechanics
- Dr. K. Cai, Postdoctoral Fellow
  Coding theory, combinatorics
- Dr. Z. Wu, Postdoctoral Fellow
  Scientific computing, mainly in uncertainty quantification, model reduction, quantum mechanics
- Dr. Y. Xu, Postdoctoral Fellow
  Algebraic coding theory

Chat with your potential supervisor to get research idea
Or talk to them about your rough ideas…

Research Proposal

- After reading given materials, consider the following points:

    1. **Why this research is important?**
    2. **How do you plan to conduct it?**

        Eg. Literature review? Experiment?

        How is the design?

    3. **What do you need?**

        Eg. Relevant literatures,

        coding language, other softwares

    4. **Time/Effort allocation**

        Eg. How often to meet supervisor?

        Group work or Individual work

Introduce your research proposal and express your passionate during the interview.

During the research work

- Have to face intractable problems:

Accept the fact that there will always be problems that you can not solve right now. Be patient and don’t give up.

Some tips may help:

- Keep in contact with your supervisor :

When facing research challenges, discussing them with your supervisor can provide valuable assistance, boost your confidence, and offer new insights to guide your progress.

During the research work

- Record your process :

You will have better control about the whole progress and be mor

clear about how to spend these weeks. Also, by reviewing, you will be

proud of what you have already done.

- Try it tomorrow :

Sometimes sleeping will give unexpectable insights. Task a break is useful

and necessary.

During the research work

- Do not use FAKE data：

Academic integrity is more important than achievements. The purpose of SRF is to give us a chance to try what research is like.

- Mistakes could be creative!

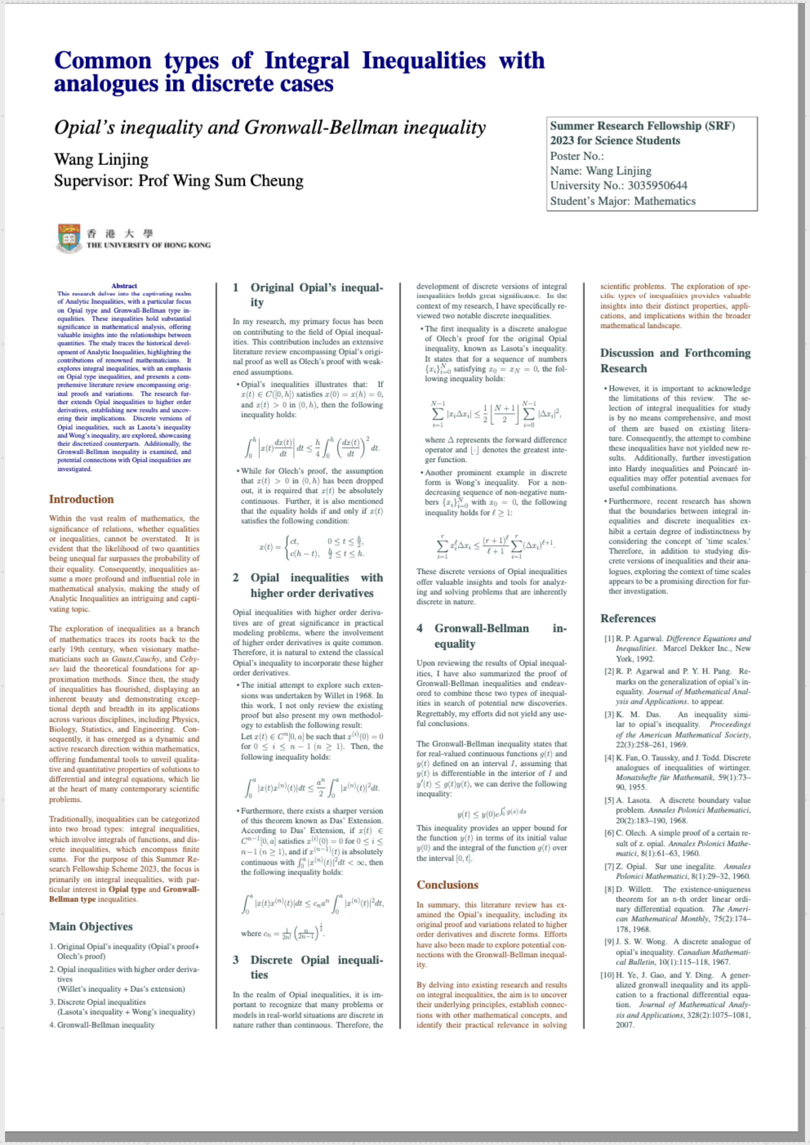
Keep open-minded to the mistake you made. Sometimes, it may provide you with more idea. But do not forget to fix it.

Final step:

Poster : include introduction, methods, results, conclusions and references. Try to make it attractive.

Synopsis: include more details comparing with the poster. Make it a summarize of the whole project.

Presentation: Great chance to let more people know what you have done. Talking could give you more inspiration.


Common types of Integral Inequalities with analogues in discrete cases

Opial's inequality and Gronwall-Bellman inequality

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Abstract

Introduction

Main Objectives

1 Original Opial's inequality

2 Opial inequalities with higher order derivatives

3 Discrete Opial inequalities

4 Gronwall-Bellman inequality

Conclusions

Discussion and Forthcoming Research

References

Thanks for listening

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Good Luck!