Stony Brook University
Technical Interview Workshop
Part II

Christian Lim
4pm ET, April 2, 2024

Christian Yongwhan Lim

Education

Stanford University

Part-time Jobs

Full-time Job

Google Research

TWO SIGMA

Workshops

Stanford ENGINEERING | Stanford Computer Forum

Coach/Judge

icpc International Collegiate Programming Contest

icpc.foundation

advancing the art and sport of competitive programming

https://www.yongwhan.io

Christian Yongwhan Lim

- Christian and Grace Consulting **Owner**;
- ICPC **Internship Manager**;
- ICPC **North America Leadership** Team;
- ICPC **North America Championship** Operations;
- ICPC North America Programming Camp **Trainer**;
- ICPC NAQ and Regionals **Judge**;
- ICPC World Finals CLI Symposium **Co-lead**;
- ICPC North America Curriculum Committee **Co-lead**;
- Columbia ICPC **Head Coach**;
- **Adjunct** (Associate in CS) at Columbia;

https://www.yongwhan.io

Overview

- Part I: Competitive Programming
- Part II: International Collegiate Programming Contest (ICPC)
- Part III: World Finals
- Part IV: North America Championship (NAC)
- Part V: Greater New York Regional (GNYR)

Part I: Competitive Programming

Why Competitive Programming?

- **To solve standard problems efficiently!**
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- **To become a better programmer!**
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  - This can help you with an early start on an interview preparation!
- **But, most importantly, TO HAVE FUN!**
  - Solving problems can be fun!

Meta Hacker Cup (YES, recruiting…!)

International Collegiate Programming Contest (ICPC)

Popular Contest Sites

AtCoder

CODEFORCES β
Sponsored by Telegram

topcoder ™

Popular Practice Sites

Popular Tutorial Sites

usaco.guide

cp-algorithms.com

More on Growing Short List of Useful Websites

- Please take a look as needed: **Link**

- Alternatively, you can also get to this from **u.icpc.global/training**!

Programming Zealots @Discord

- Break into **CodeForces** rating of **2200+** as fast as you can!

- Join discord, if you have not already!!!

  https://bit.ly/programming-zealot

Programming Zealots @CodeForces

- Also, join CodeForces group, if you have not already!!!

bit.ly/cf-zealots

Success Pathways

- **Programming Zealots @ CodeForces**
- **800 - 2100 (A - N)**
  - **For those who are just starting**
  - To gain some experiences with an explicit goal to enjoy the process of solving new problems;
  - To make it to the ICPC North America Championship (NAC)!

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- **2200 - 3500 (O - ZB)**
  - **For those who are more serious**
  - To make it to the ICPC World Finals (and potentially winning a medal)!
  - In **Part II** at 4pm today, we will dive deeper into this!

Practice Strategy

- If your goal is to get to a rating of **X**, you should practice on problems that are **X + 300** typically, with a spread of 100. So, picking problems within the range of:

  {X + 200, X + 300, X + 400}

  would be sensible!

- So, if you want to target becoming a **red (grandmaster)**, which has a lower-bound of 2400, you should aim to solving {2600, 2700, 2800}.
- **(Eventual) Target**: You should focus on solving it for 30 minutes or less!

Practice Strategy (con't)

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- You should aim to solve **~5 problems** each day within this range to expect a rank up within six months.

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- You should focus on solving each problem for **30 minutes or less**; if you cannot, you should consider solving a problem with a lower rating.
- You should aim to solve **~5 problems** each day within this range to expect a rank up within six months.
- If you cannot solve a problem, here is a sample recipe you can follow:
  - Look at editorial for **hints**, and try to solve the problem.
  - Look at editorial for **full solutions**, and try to solve the problem.
  - Look at **accepted code**, and try to solve the problem.
  - Make sure you **revisit after two weeks** and see if you can solve it.

Programming Contests

- **CodeForces**
- **AtCoder**

- **Universal Cup**: https://ucup.ac/register

- **Quarterly Contests** from ICPC Curriculum Committee, starting **June 2024**

Training Resources

- **U ICPC**: https://u.icpc.global/training/
- **CP Algorithms**: https://cp-algorithms.com/
- **USACO Guide**: https://usaco.guide/

- **Kattis**: https://open.kattis.com/
- **Methods to Solve**: https://cpbook.net/methodstosolve?oj=kattis&topic=all&quality=all
- **CSES**: https://cses.fi/problemset/

Part II: ICPC

International Collegiate Programming Contest (ICPC)

- If you would like to train as an official ICPC Foundation intern (unpaid), please reach out to me at **christian.lim@icpc.global**.
  - Weekly masterclass on Sundays!
  - Weekly problem set!
  - Weekly 1:1 mentorship!

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- Or, book a 1:1 time slot using

bit.ly/yongwhan-quickchat

Part III: World Finals

ICPC World Finals @Stony Brook University

- You can look up the previous results from https://cphof.org.
- For **Stony Brook University**, we have the following results:
  - **2009** (finalist; [0~2]/11; Prize $300)
    - Leif Walsh; Roman Kogan; Tynan Fitzpatrick;
  - **2006** (60th / 83 teams; 1/10)
    - Justin Seyster; Mikhail Bautin; Mohammad Hossain;

- You. YES, **YOU**(!) **should** train hard to get to be the next **world finalists!**
  - You, and only you, can drive the change here!

ICPC Greater New York Regional (GNYR) Training

- So, **exactly**, **how should you do this?**
  - @Kattis: simulate (**virtually participate**) previous **World Finals** (WF) problems, **North America Championships** (NAC) problems, **North America Invitation Programming Contests** (NAIPC) problems.

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  - However, **doing it consistently can be quite challenging.** So, what I recommend you do is join the **Greater New York Regional (GNYR) training** right away! The sooner the better!
  - It is held **every other week on Sundays**, **in-person**, at Columbia (for now), but with a plan to expand to other universities soon!
    - If you cannot participate in-person, **remote** participation works!

ICPC Greater New York Regional (GNYR) Training (con't)

- The regular attendees of the training sessions include **Greater New York Regional** teams that are going to:
  - **World Finals** @Luxor, Egypt (April 2024)
    - Rutgers; NYU; Princeton; Columbia; ...
  - **North America Championship** @Orlando, Florida (May 2024)
    - Rutgers; NYU; Princeton; Cornell; Columbia; ...
- Remember: Every other Sundays,
  - We simulate the contest from 1pm ET to 6pm ET!
  - Then, we go over the solutions from 6pm ET and after!

ICPC World Finals: Practice “Strategy”

- The **real keys** to success are:
  - “Upsolving” questions after each session.
  - If solutions are unclear,
    - **STUDY** the algorithms,
    - **IMPLEMENT** them, to make sure you know how to do that,
    - **CHECK** whether you retained them after few weeks,
    - **REPEAT** as many times as needed to learn the algorithms.
  - The **discussions** and **upsolvings** are most probably more important than the simulations! They let you train concepts you DO NOT KNOW!
  - Then, **rinse and repeat** with other problem sets!

Part IV: NAC

ICPC North America Championship (NAC)

- It started in 2020 for the first time!
  - 2024: Cornell; NYU; Princeton; Columbia; Rutgers;
    - To be determined who goes to World Finals!
  - 2023: Yale; NYU; Rutgers; Princeton; **SBU**;
  - 2022: Columbia; Rutgers; NYU; Cornell; Yale;
  - 2021: Yale; Rutgers; Princeton; Columbia;
  - 2020: Rutgers; Columbia; ...
- Prior to that, there was unofficial contest called **North American Invitational Programming Contest** (NAIPC), which was active from 2014 to 2019!

2024 North America Programming Camp (NAPC)

- I am one of the trainers: https://www.cecs.ucf.edu/NAC-NAPC/trainers
  - Jingbang Chen (Waterloo)
  - Zachary Friggstad (Alberta)
  - Andrew He (MIT)
  - Ce Jin (MIT)
  - Christian Yongwhan Lim (Columbia)
  - Quanquan Liu (Yale)
  - Etienne Vouga (UT Austin)
- **You can get more information from** https://u.icpc.global/training/napc
  - You **should** get the training materials from there!

Part V: GNY Regional

GNYR Training Sessions

- You should join the training sessions that are happening every other week!

- Feel free to send me an email at christian.lim@icpc.global to get added to the sessions!

Columbia University Local Contest (CULC)

- 3rd **Columbia University Local Contest** (CULC)
  - **Individual**, not team, contest!
  - Date: **Saturday, April 27, 2024**
  - Time: **1pm ET ~ 6pm ET**
  - @**Uris Hall, Columbia University**

- **https://bit.ly/spring2024-culc-flyer**

Contact Information

- **Email**: yongwhan@yongwhan.io

- **Personal Website**: https://www.yongwhan.io/

- **LinkedIn Profile**: https://www.linkedin.com/in/yongwhan/
  - Feel free to send me a connection request!
  - Always happy to make connections with awesome students! :)