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# **Swarthmore**

# **Technical Interview Workshop**

## **Part II**

— Christian Yongwhan Lim —  
4:30pm ET, September 29, 2023

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# Yongwhan Lim



## Education



## Part-time Jobs



## Full-time Job



## Workshops



## Coach/Judge



<https://www.yongwhan.io>

# Yongwhan Lim



- Currently:
  - **CEO** (Co-Founder) in a Stealth Mode Startup;
  - **Co-Founder** in Christian and Grace Consulting;
  - **ICPC Internship Manager**;
  - **ICPC North America Leadership Team**;
  - **Columbia ICPC Head Coach**;
  - **ICPC Judge** for NAQ and Regionals;
  - **Adjunct** at Columbia CS;
  - **Visiting Instructor** at Cornell-Tech;



<https://www.yongwhan.io>

# NOW... IT IS ABOUT YOU!

- Please fill out a survey on:  
<https://bit.ly/swarthmore-workshop-survey>

**NOW!**

- I will give you **few minutes** to fill out the survey :)



# Overview

- **Part I: Behavioral Interview (must for any SWE)**
- **Part II: System Design Interview (> entry level)**
- **Part III: Machine Learning Interview (ML Engineer/Data Scientist)**

# Part I: Behavioral

# Behavioral Interview (for everyone)

- Becoming an industry standard to have at least one session in typical software engineering interview loop.
- Wants to assess leadership potential.
- Tests soft skills (e.g., effective communication, conflict resolution, etc.)
- Open-ended: **not** about getting it right or wrong!

# Example Question #1

- Tell me about a time when you led a team to successfully complete a project.



# Example Question #1: Sample Answer

- Best if you led a hackathon/passion project.
  - Otherwise, if you led a project as an intern, highlight it.
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- Be **concise**!
  - Include hard **metrics** in terms of %, \$, etc.
  - Provide **concrete** examples.

## Example Question #2

- How do you set up priorities for the work you are facing each day?

## Example Question #2: Sample Answer

- Priority queue idea:
  - Most essential responsibilities first!
  - Respond to emergencies as needed.
  - Non-essential tasks can be delayed.

## Example Question #3

- What experiences do you have relevant to this job?

## Example Question #3: Sample Answer

- Highlight a technical project you have done that lasted **at least** one year.
- Discussing technologies is a **must**!
  - **Programming languages:** C++ vs Java vs Python vs Go vs ?
  - **Databases:** SQL vs NoSQL vs ?
  - **Algorithms and Data Structures**
  - **Development tools:** Emacs vs Vim vs Visual Studio vs JetBrains vs ?

# Resources

- There are number of preparation books.
- For example:
  - *Behavioral Interview Questions and Answers* by Horatio Bird;
  - *Leadership Interview Questions You'll Likely Be Asked* by Vibrant Publishers;

# Part II: System Design

# System Design Interview (for > entry level)

- Identify large components of the system and describe how each component is connected.
- Actual implementation details are **not** as important.
- Tests whether you can design an architecture using standard design patterns.



# System Design Interview (for > entry level)

# Resources

- Must reads are:
  - The System Design Interview, 2nd edition by Lewis C. Lin, et. al.
  - System Design Interview by Alex Xu

# Part III: Machine Learning

# Machine Learning Interview

- **Hands-on Experience** using TensorFlow/Keras/PyTorch: comfortable using data to feed into a baseline model.
- **ML Foundations** (e.g., linear regression, support vector machine, etc.)
- **Recent Trends** (reinforcement learning, deep learning architectures, etc.)

# Machine Learning Interview

- **Hands-on Experience** using TensorFlow/Keras/PyTorch: comfortable using data to feed into a baseline model.
- **ML Foundations** (e.g., linear regression, support vector machine, etc.)
- **Recent Trends** (reinforcement learning, deep learning architectures, etc.)
  
- **In-depth knowledge** of a specialization (e.g., computer vision) can be a plus, but not required.

## Example Question (Theory)

- What is a difference between unsupervised learning and supervised learning?

## Example Question (Hands-on)

- What are some practical ways to avoid overfitting?

## Example Question (Implementation)

- Given a stock market data, predict the future stock price.



# (Must!) Resources

- **Textbooks:** *Deep Learning* by Ian Goodfellow, et. al.
- **Courses:** Stanford CS 229 (Machine Learning); ...
- **Tools:** PyTorch; Keras; TensorFlow; Jupyter; ...

# International Collegiate Programming Contest (ICPC)

- If you would like to get involved in helping out as a volunteer or an official (unpaid) intern, please reach out to me at [christian.lim@icpc.global](mailto:christian.lim@icpc.global).

# ICPC Columbia University Local Contest (CULC)

- Sunday, October 15, 2023
  - 1pm to 6pm
  - Online
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- This is an individual, not a team, contest!
  - Sign up using <https://bit.ly/2023-culc>!



# Workshop Feedback Survey

- Please complete the following survey:  
<https://bit.ly/swarthmore-workshop-feedback>



# Contact Information

- Email: [yongwhan@yongwhan.io](mailto: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 promising students!