Job Interviews

# Google Machine Learning SWE Interview

A Anonymous
Jun 18

I have an upcoming onsite interview with Google Machine Learning - software engineering position. Can someone help me with the ML rounds?

Google | Machine Learning | Software Engineer

**Questions**

1. How many rounds should I expect and what will each round cover?

   50 words minimum.

2. What are some example questions that are asked on ML rounds?

   50 words minimum.

**2 Answers**

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1. How many rounds should I expect and what will each round cover?

You should have a total of 5 onsite interview rounds, and an additional lunch interview.
The lunch interview isn't evaluated in the feedback, it's meant for you to ask questions and have some free time to interact with a Google engineer.

Out of the 5 onsite interviews, 2-3 will be focused heavily on coding and problem solving. There will be 1 interview on leadership and googleyness if you're being interviewed for target L5 or higher. About 1-2 interviews will be focused on system design and/or machine learning.

Coding/problem solving: these are straightforward. You will be presented with a problem and you must think of an approach to solve it, implement code to demonstrate the solution, and reason about its runtime complexity (time and space). The interviewer might add some additional constraints to reason about efficiency or alternative approaches. Your goal is to arrive at the efficient solution and reason about the merits and pitfalls of various approaches along the way. Practicing the medium and hard questions on leetcode (www.leetcode.com) would be helpful here.

The leadership question will be behavioral and you will be asked how to handle various types of situations like a disengaged teammate or conflicts of opinions etc.

The system design interview will focus on how design a common use-case, for example a large e-commerce website or a music streaming service. The key is to focus on how to handle the complexities using well known strategies from distributed systems, stream-processing, map-reduce, services, pub-sub etc. You should have practiced enough problems so that common use-cases roll off your memory easily.

Lastly, the ML interviews will be focused on a machine learning problem. The key here is to show that you grasp the various skills involved in being an ML engineer. This includes:
- how to frame your objectives (what loss function will you optimize, why?),
- select the right dataset (what data will you collect to train your model. Why? how to avoid bias and feedback loops. How will you collect labels or ground truth)
- feature engineering - how will you transform the raw data into a form useful for models (e.g. normalization, missing values, data cleaning, etc)
- model selection - what model to use for what type of problem and why (boosted decision trees, deep learning, logistic regression, factorization models etc)
- training, validation and inference - how will the system be setup how will you do validation, how to address train/test skew etc.
- productionization - how to monitor performance, how to handle problems, what if new model is corrupt or new training batch is incorrect etc.

There might be a small coding session involved in the ML interview also, e.g. write code for autocomplete functionality on android keyboard.

2. What are some example questions that are asked on ML rounds?

Please visit leetcode.com for common patterns.
ML questions usually involve a problem solving question that needs data-driven models to solve. Examples are autocomplete on keyboard, recommendation systems (play app store, youtube, etc think of any product that needs recommendations for users). Please see the section a... the 6 sub-areas to focus your learning on. If you demonstrate expertise in each of those areas without hesitation or uncertainty, that would help with

your performance a long way. Another useful tip is to practice a lot - write a lot of code for the leetcode problems on a whiteboard for practice and time yourself. Practice coding for small ML problems like predict the next word or character to suggest for autocomplete on keyboard. Another useful tip would be to learn the common recipes for various ML applications - classification, recommender systems, tagging systems, image models around imagenet, regression, etc. Learning the system design for these ML systems is an added bonus.

Good luck!

A Anonymous ★★★★★

Thank you so much for such an informative response. This is really helpful!

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1. How many rounds should I expect and what will each round cover?

Your recruiter should brief you on this, but expect 5 rounds total, and 3-4 data structures/algorithms rounds, and 1-2 ML-specific rounds. 1 if you're interviewing for L4, 2 if you're L5. The data structures and algorithms should be very much like Leetcode. Highly suggest practicing that beforehand. There may also be a behavioral round depending on which office you're in because Google started rolling that out. But it will be 5 rounds.

2. What are some example questions that are asked on ML rounds?

This is a new umbrella of interviews that we started doing so there's no alignment on the types of question being asked. Totally up to the interviewer. I see it breaking down into 3 different possible types: past project deep-dive (your past ML projects), rapidfire knowledge questions, and open ended ML design questions (design YouTube recommendations). Expect to get grilled on knowledge, as this round is meant to test your level of expertise by someone experienced.

A Anonymous ★★★★★

Thanks for the info! Pretty informative about the interview process

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