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How should I prepare for interviews for machine learning positions at companies like Google, Facebook, and Twitter? How far can I go? I have a bachelor's degree in software engineering, and I have been working in a small company for two years.

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3 Answers



Chris Meyers, Data Scientist

Answered Aug 13, 2014

In my last job search, I interviewed for similar positions in two of those companies (Google and Twitter).

For Google, as you aren't a machine learning researcher, the interview process will almost certainly be generic and not focused on a particular team. They will try to make sure you are a generally smart person and a good overall hire for the company. You can read other answers about the typical Google hire process for software developers. Assuming you meet the hiring bar, the hardest part might be finding a good team match, which happens after the interviews. If you stress that machine learning is your primary interest to the recruiter, they should have you directed to the right sort of teams. There is however, a huge variety of machine learning used at Google, and many teams do it to greater or lesser degrees, so it will be up to you to ensure whether the teams you are initially matched up with meet your desires. If you get to that point, don't be afraid to say that the teams aren't exactly what you wanted if they aren't hitting your interests.

For Twitter, my interview experience was very machine learning focused, almost the exact opposite of Google. But I'd also been referred by several people on the team, so your mileage may vary. They have some good machine learning projects there that you can try to get on. Not the huge variety that Google has, but also not yet as mature, so more room to grow and invent things yourself.

In general, for an interview that you think will be machine learning focused, I would make sure you knew the following techniques, and an approach you would use for each, and how they are different from each other:



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Likely most of them wouldn't come up in an interview, but you should at least not be lost if they are mentioned.

As for how far you can go in the industry, you definitely don't have to be a PhD Researcher type to do this sort of work. There is plenty of room for people who want to actually engineer production code that uses machine learning, without having to get into all the math behind technique. The vast majority of time spent on machine learning type projects in these companies isn't coming up with new fancier techniques and algorithms to publish, usually an existing one that's already been implemented and tested will work best. **The majority of time is spent coming up with good features and data to feed into the machine learning systems, and then getting that data in a production architecture.** So keep that in mind if you get a machine learning interview question that the interviewer probably won't care if you can list out twenty techniques or can determine that SVM will be better than Neural Networks, they'd probably rather hear about what you think the judgments and features should be, so they can tell if you can think intelligently about the problems.

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Jake Cook, co-founder of gainlo.co, years experiences in interview

Answered Sep 21, 2015

This is a very good question and over the past a lot of people have asked how to prepare for a specific technical position at large companies like Google, Twitter etc.. From your description, it seems that you have two years working experiences as a software engineer, and your machine learning skills are mostly self-taught with side projects instead of production experiences. So I would give you the following suggestions.

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It is quite common in large tech companies that no matter what position you are applying for, you will get thru the very similar hiring process that interviews are mostly focused on data structure, algorithms, system design and testing. In other words, it doesn't matter if you are an IOS developer or a machine learning guy, interviews will have a lot in common.

With that in mind, you should be quite clear about what kind of questions will be asked in the interview and don't be surprised when you are asked to code something like reversing a string.

#2 Prepare well for general technical interview

As the interview will cover a lot those general stuffs like data structure and algorithms, it's quite straightforward that you should put most of your focus on this area. Also for experienced engineers, they tend to forget most of them as they are not used quite often in real world. This is another reason you should spend enough time on this topic.

As you already had 2 years working experience, I believed that you had this kind of interview 2 years ago and know exactly how to prepare well for this part.

Maybe you can check the following few resources to make it even better:

- [Gainlo](#) - We built Gainlo to allow people get mock interviews from experienced interviewer from Google, Amazon, Linkedin etc. and get real feedback to improve.
- [LeetCode](#) - Coding questions with online judge.
- [Glassdoor](#) - You can do some research about the company you apply for and practice questions from its past interviews.

#3 Machine learning preparation

For your first question how far you can go in machine learning in industry, I would say you don't need to be a math expert in order to do ML in industry since industry is quite different from research world. In industry, the key isn't creating new algorithms or something fancy. Instead, what really matters is features you select and process, size of available data set etc., which requires more experiences rather than maths. So in short, you can definitely go achieve your ML goal without being extremely good at maths.

For you 2nd question about how to prepare the interview for ML, here are few items you should definitely try:

- Be clear about ML basic concepts. You don't need to do maths, but you should be able to explain those algorithms clearly.
- Prepare with some ML interview questions. I believe you can Google a lot of them.
- Learn how ML works in real world examples. Do some investigation about how different companies designed their ML systems and understand why they were designed in this way. In your interview, you won't be able to code any ML algorithms, instead you are more likely to discuss design and optimize some ML systems. So getting to

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Vickie Elmer, Wrote or edited 100s of articles on careers; offer creatives career coaching.

Answered Aug 7, 2014

I cannot answer the technical details on this but I can tell you how to prepare for an interview with a dream company.

1. Read as much as you can about the company, its strategy and new products. Learn who all the senior executives are (including their colleges, charities, pet projects and more).
2. Spend time reviewing job openings and descriptions, especially those that are similar to the ones you want. Print them out and highlight key skills and traits desired. You're looking for areas where you match up and holes or deficiencies that you need to address. Many times you need to match a high percent of what's listed to get past the initial screening.
3. Revise your resume, so that it's tailored to that company and that job, using what you've learned and bulking up the areas that are important. Highlight successes. Is that recommender system a strong indicator of your abilities? Could it be a case study showcasing what you can do?
4. Your question included a lot of not that good statements. It's better to focus on the positives, the best of yourself. Start working on a short (one or two paragraph) written summary of yourself and your talents. State where and how you excel and why you'd be a great worker. Include the notion that you learn quickly or regularly take online classes, if this is true, and that you're highly motivated. This will be useful for networking events and in your cover letter.
5. Used LinkedIn or professional associations to locate people you know (or have worked with) who currently work at your dream companies. Set up coffee with a handful, and seek their support. Get an in-house recommender or two - this could make a big difference in landing an interview. These people also may offer insights into selling yourself and the hiring process.

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6. Start mock interviews. Sites like Glassdoor give interview questions and other information that's useful.
7. Come up with a strategy to fill in the blanks. If you need some experience to land a job, it helps to show you're working on developing it - either through a volunteer assignment, helping in a friend's business or another approach. Be proactive and professional - and document your progress with Tweets or on LinkedIn.

This may take you more than two months to complete, or perhaps you are so eager that it will be done more quickly. Being prepared and recommended will really make a difference if and when you land the interview. Good luck!


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