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r/MachineLearning

Posts

Posted by u/rrenauww 2 years ago 🗄️

[D] To PhD or not to PhD ?

Discussion

Are PhDs really required to work in an AI lab?

I have a French engineering degree (equivalent to an MSc), majored in datascience and robotics, and an other masters in applied math on top of it and I am really struggling to find work in an AI lab. I've been working as a datascience consultant for a year now in one of the biggest/best datascience consulting outfits in Paris, thinking wrongly that the technical/theoretical level would be higher than it is. I am doing really basic regressions in R and pumping out powerpoint presentations.

I've been trying for the last 3 months to find positions in any company that claims to have an AI research division. The problem is for smaller companies, I found that most offers with AI in the title are basically doing what my consulting firm does, use AI and datascience as buzzwords to upsell themselves. I really do not want to change jobs only to do basic stuff and powerpoint presentations. And for the big ones, the few positions I come across for which I know the company really does research (Google, FB and co) I haven't been able to go past the HR phone interview (I have applied worldwide). Seeing as these positions ask for PhDs or MScs, my questions would be:

1. Considering my background and experience, am I deluded in thinking I have a shot at the big ones ?

2. If I don't have a shot, why? Is it because of a lack of education ? the perceived quality of my education (not stanford or MIT) ? Is it because I pigeonholed myself in a consulting job ?

3. What should I do to maximize my chances, should I go back to academia and get a PhD ? Should I work in an AI startup to wash away the consultant stigma/ build my public github (can't really share what I'm doing as a consultant) ?

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BeatLeJuce **Researcher** 2 years ago · edited 2 years ago

The real question you need to answer (and be really honest about) is the question of what do you REALLY want to do?

When you say "research", do you mean fundamental research (e.g. "what does th error surface of a neural network look like?"), applied research ("can I use deep learning to solve problem X?"), product development ("how exactly do I implement a semantic segmentation CNN to recognize pedestrians in my car") or do you just want to get into this area because it's hip/well payed and don't really care about the contents?

I've asked these questions in decreasing likelihood of needing a PhD. Let's go through them step by step:

In my experience, industry AI research labs that do fundamental research (especially the ones you apparently want to get into, like Deepmind, Google Brain or Facebook AI Research) hire *scientists*. Having a Master's degree or two (or consulting experience) doesn't make you into a scientist. Because that's what a PhD is for: to teach you how to be a scientist. Your consultancy will not mean much, because when you're consulting, you don't need science skills. Sure, you need analytical skills and you need to know how to apply existing methods, but that is not what DOING SCIENCE means. You have to learn to ask the right questions (Step 1), know how to approach that question scientifically (Step 2) and then, work hard until you have your solution (step 3) and then analyze that solution (step 4) and maybe communicate those results (step 5). More than likely, right now you only know how to do step 3 (and 5), because up to Master's level, that's what university education mainly focuses on, in my experience (YMMV, I haven't met many French ppl). So it's no wonder the big labs aren't interested in hiring you as a scientist, because from your CV, it's apparent that you are not a scientist.

Go and look at the papers of the *top* conferences, where the labs you want to get into actually publish. Are you, right now, consistently capable of producing research like that? I don't mean just understanding those papers and being able to re-implement them. You hopefully are able to do that. But would you be able to come up with solutions like that? Would you even think of trying to solve problems like this one? Would you be able to come up with the math/proofs required to show the theoretical background, would you know how the stuff is connected to all the other stuff currently being researched (so you know what else to cite)? Because those are the skills that scientists have.

And if you really do already know how to do all of that stuff, then your CV should clearly reflect that: Where are the papers at top conferences that you authored yourself? Everything else barely matters for true research positions.

scientists. And even among people with PhD, there's a wide range of quality differences. So research labs DO actually hire some scientists-to-be, as long as they're very promising. Some even collaborate with some universities so they can snag promising talents from there, or have programs to produce their own new scientists (e.g. in residency programs). But you'll still need to show that you are able to do science (or will potentially be in the future) . I don't think having a Master's and some Consultancy job are enough to show that you have promise as a scientist. Having a paper at a *good* conference does that. If you're just an MSc, even a mediocre conference or a workshop is a good indicator. At the very least, find an reputable reseracher who can vouch for you. But IMO, doing a PhD is your very best option if you want to do fundamental research.

If instead of fundamental research you want to do applied research, the game gets a little easier, because it's easier to get your foot in the door in an applied field (I think). The bar of entry is a bit lower, I think, because simply knowing the applied field will get you far. It's also easier to move laterally (e.g. from the software developer that writes the front end to ML engineer that implements the algorithms in the backend to the applied researcher who actually develops the algorithms).

For both kinds of research, the PhD is not the only way to entry, albeit the most common. Of course you can write blogs, re-implement stuff and have side projects on github for that kind of stuff (since a lot of it is applying existing science to new problems), and that's a good way to show people you're a motivated, interested and capable person. Especially for people with good analytical skills. But still, if research is your end goal (no matter if applied or not), a PhD is the usual career path choice. And with how the field is growing, it's likely to only get harder to get into the field without the proper education (= without doing a PhD).

Lastly, if you want to do development, I think you should have no problem getting a job with your current skill set.

However, the main question that puzzles me: if you really want to do RESEARCH, why aren't you doing a PhD already? Because that's pretty much exactly what a PhD does day-in, day-out. You don't need to work at Google to do cool AI stuff. Most of the very cool research in the field is done in academia by PhD students! (after you finish your PhD, it should be no problem to move into an industry research position for more money)
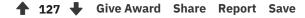
Disclaimer: this is just my personal opinion & experience. YMMV.

TL;DR: if you want to do research, start by doing a PhD

EDIT: a lot of people have contacted me and are worried because they might not be "good enough at math/proofs" to do a PhD. Don't sweat it! You're supposed to learn on the job, and a solid grasp of undergrad math will get you a long way. No-one expects you to be a math whiz. It's true, ML is an analytical field were we're trying to find well-founded answers using math, but enthusiasm and curiosity about the field is all you need. The rest will come with time. What I talked about in this post is what I personally expect an ML research scientist to be able to do AFTER having completed a PhD, not before (and of course, not everyone has to

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noraizon 2 years ago

This answer is gold for undecided MSc students.

I'd like to know your thoughts on how to get the maths skill level to "come up with the math/proofs required to show the theoretical background", if one comes from say, a plain old CS background or a little lower?

I have to mention tho, that I'm brushing off/learning some algebra and bayesian stats in the masters.
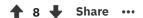
⬆ **13** ⬇   **Share** ...

BeatLeJuce **Researcher** 2 years ago

Don't worry, you learn "on the job". My math was also pretty weak, but no-one expects you to know everything at the beginning of your PhD. You're there to learn, after all.

⬆ **6** ⬇   **Share** ...

kilgoretrout92 2 years ago

I really needed to hear that. Thanks.

⬆ **8** ⬇   **Share** ...

Nuzdahsol 2 years ago

You are not alone... That makes me feel relieved.

⬆ **4** ⬇   **Share** ...

noraizon 2 years ago

that is really reassuring. thank you for your answer

⬆ **2** ⬇   **Share** ...

rrenauww 🎤 2 years ago

The reasons for me getting into consulting instead of a PhD are the following:

- I was a little lied to by the consulting firm in which I am on their level. We have an "AI lab", we have PhDs working here, partners teach classes at other engineering schools, etc. I thought going in that I had found the golden ticket, I would get to do advanced stuff, develop and apply new solutions all the while being well payed etc. This clearly isn't the case and is my fault.

- I thought that the data, problems and solutions consulting firms have access to would be the most interesting. In a caricatured way, public datasets have been studied to death, the only place to find cool unexplored datasets and problems is deep inside companies' datalakes.

business intelligence. So I had already gotten a taste of a work environment and liked it.

To answer the first question, I guess I want to do applied research. I really enjoyed writing my master thesis on WGANs for my "master recherche" in applied math. So I guess that's what I want to do. It's just that both degrees + gap year of internships + my year of experience make 7 years already, I really hoped it would be enough, I am not asking to become the head honcho at google brain overnight, I want to work on cool stuff with cool people.

⬆ **10** ⬇   Share   ···

BeatLeJuce   **Researcher**   2 years ago

For applied research, I think it might be easier to move into the area. But especially for the big labs, you are competing with PhDs that have an education as scientists. If you neither have large experience with the applied field, nor research experience with ML, this will be hard (And a "master recherche" isn't 'research experience'). You can improve your hireability by showing that you have *relevant* experience in the field: writing papers is likely too hard, but you can still write blogs about ML side projects or contribute to relevant open source packages. Still, since you said:

> I want to work on cool stuff with cool people

Doing a PhD offers you exactly that. The paycheck sucks compared to industry, but all the other things are exactly what a PhD does. And you get access to enough unexplored datasets and problems if your lab has interesting research collaborations.

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rrenauww 🎤 2 years ago

So the question isn't really PhD or not, but which lab is the best ;)

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StrawberryNumberNine 2 years ago

Aren't French PhDs done in like 3 years? I think that's a pretty good option for you.

⬆ **1** ⬇   Share   ···

gammaknifu 2 years ago

i think this is a nice and relevant answer. That being said, I also think lots of solutions, as well as important and elusive questions, are born out of necessity, such that one can very rarely (if ever) answer the question of: "can I produce something like this?" without oneself being already submitted to such a fate.

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pinouchon 2 years ago

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Just kidding good answer

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agoldin 2 years ago · edited 2 years ago

My PhD was not in ML and I do not know current ML job market well.

Saying that, my usual answer to the question "Should I get a PhD or not?" is the following: if you do not know the answer, you probably should not.

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Comment deleted by user 2 years ago

TelepathicMalice 2 years ago

3.5-4 years is typical where I live. Here most scholarship money runs out at 3 or 3.5 years. This tends to motivate people to finish and get the thesis submitted.

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n3b_u 2 years ago

In the genuine companies are you applying directly to the AI or research roles? It can be easier to move laterally within a company rather than go straight into a role from the outside.

I'm in a similar predicament to you, and am taking some advice given by Peter Norvig in an AMA he and some researchers did recently (https://www.reddit.com/r/science/comments/7yegux/aaas_ama_hi_were_researchers_from_google/):

"...I can see that it is tough to get a job in AI Research coming straight out of an undergrad program at a small school. But, you are in a position to get a software engineer position at a big company, and once you are there, express your interest in AI, learn on the job, keep an eye out for AI-related projects you can work on, and chances are that in less time than it would take to do a PhD, you'll be an established AI expert within your company."

This might apply differently to you given your background, ie it might not be a software engineering role you take at a big company, but the theory remains the same. I don't think having a PhD is vital, it just alters your route to the end goal. Get your foot in the door based on what your most qualified in, then use lateral moves to get closer to what you want to do.
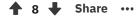
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gionnelles 2 years ago

I couldn't agree with this more. My background is painfully light on academics, but 20+ years of applied computer science including 10+ years of extremely large data analytics which led to my interest in ML. I worked my way through my company to hold a chief data

experience with current academic knowledge for data science, but it certainly isn't necessary to have a PhD before getting a position in the AI/ML field.

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👤 maxToTheJ 2 years ago · *edited 2 years ago*

> for federal customers

Well I didnt see that coming when finding out a chief data scientist has a background light on academics.

EDIT:

Congratulations on the promotions. However, if you are aware that chief data scientist is management position and are willing to learn plus aware of what you dont know.

However, every single time I have interacted with an executive level data person who is out there doing bad data practices like decisioning on absurdly small data samples it has been someone *without* a rigorous data background who managed to move up the corporate ladder without filling in **very basic** knowledge gaps.

There is nothing sadder than seeing a subordinate who knows his superior is wrong from a technical standpoint and is being loud as well. It's like holding someone intellectually hostage. Everyone should always work to avoid this

⬆ **2** ⬇   Share   ···

👤 gionnelles 2 years ago

Actually a lot of our initial work for this company was commercial healthcare, and I've done 10 years in commercial ranging from startups to large companies.

My personal background leans more on experience, but multiple PhDs work for me and I'm at least a co-author on a few ML academic papers.

Federal is generally years behind commercial on widescale adoption of ML, but there are pockets of advanced research such as DARPA, IARPA, and NSA.

I understand if you feel the need to deride someone who has a different path in the industry, but my post was meant to encourage those who aren't sure how to progress in the field that there is more than one path to success.

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👤 maxToTheJ 2 years ago · *edited 2 years ago*

> I understand if you feel the need to deride someone who has a different path in the industry,

My comment is more about having a strong foundation **before** being promoted or being the type of person who is aware of his weaknesses and works to fill them in as well as knowing limitations.

The reason I emphasize *before being promoted* is that in a corporate environment you get promoted by how well you do your current job , how well you are **perceived based on the ability of the promoter** to do your promoted job, how good your personal relationship with those above you are. Many times this will have little to do with your technical ability and as you move up where you do more with management skills. Technical ability factors in less.

There are companies whose DNA is built in with technical ability and engineering who expect and **can evaluate technical ability** but these companies are few and far between. **I just saw a thread on a related subreddit where an at minimum Senior Data Scientist will be hired based on a intern as the technical domain expert**.

In most companies at the executive and management level you will be evaluated by business stakeholders on how well you can manage to contribute to their bottom line. This creates blind spots in technical ability and for many folks promotions will create confidence to ignore these blind spots and organizationally due to your promoted position you will be insulated as well.

⬆ **1** ⬇   Share ···

🤖 **gionnelles** 2 years ago

Compared to the PhDs I work with, my academic background is limited, yet I've been very successful. I'm not patting myself on the back, it was intended to provide encouragement for the exact sort of question this thread was created to ask.

Having a strong technical foundation to do the job you are being hired to do is important. I've been doing big data analysis on petabyte+ data sets for years, and I'm not in this position because nobody vetted my capabilities or I'm friends with senior executives.

Clearly this is something you feel very passionately about, but I'm not sure exactly what point you are trying to make. If you are disagreeing that you can land a data science position from *merit* by learning the skills outside of a PhD program and working up through a software company... we are going to have to agree to disagree.

That being said, I'm happy to discuss more if you like, feel free to PM me. I'll also be attending Tensorflow Dev Summit in CA this month, so if you happen to be there I'd love to talk in person.

maxToTheJ 2 years ago · *edited 2 years ago*

> but I'm not sure exactly what point you are trying to make. If you are disagreeing that you can land a data science position from merit by learning the skills outside of a PhD program and working up through a software company... we are going to have to agree to disagree.

Simply put into 3 points

A) I agree there are paths to chief data scientist which even involve just a bachelors and even just a HS degree. However, all the paths which leadup to chief data scientist without having a superior with strong technical ability to teach and assess you are a subset of these exact paths.

B) Those paths can lead to very foundational technical blind spots. So if you are going to go down those paths make sure that in a few instances on the way up it is under folks with very strong technical backgrounds.

C) The higher up you get promoted if you dont take care of those blind spots they will become harder to both see and address as management duties take more of your day to day and the folks you report are more likely to be less technical
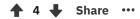
⬆ 3 ⬇ Share ...

gionnelles 2 years ago

I agree with all 3 points.

> I think it's worth mentioning that whatever path you take you are going to develop blind spots unless you take special care to resolve them. One of the advantages of my background for example is a strong understanding of production code. In my experience most data scientists who have spent more time in academia struggle severely with documented, reproducible, and tested code when it comes time to productize experiments. It's not an indictment of the value of academia, just a blind spot that I often see.

> Ideally regardless of the path someone follows, strong technical fundamentals, a willingness to learn, and self reflection on areas to improve are all valuable.

⬆ 4 ⬇ Share ...

gionnelles 2 years ago

Ahh, I think I understand more from your edit. Yes, I'm extremely aware that a large part of my job is managing my researchers, developers, and doing technical briefings as much as implementation. It's why I've made such a focus on keeping my fingers in

There is nobody in a management position who can also be the best engineer or best scientist for a team, our time is too divided. I try and listen to people smarter than me, and apply the knowledge I have to make our pipeline work. In our case the pipeline consists of ML research (mostly focused on human cultural and social behaviors) which create generalized tools that eventually get productized for end customers.

I'm fortunate that I get to contribute to the actual ML research and co-write papers, but I also am stuck at the BD side of things trying to find applications for our customer base for these technologies. I love the work, and I try very hard to improve, but I want to make sure people who are interested in the field don't feel like they have no option to get involved in AI/ML without following a PhD program from a top 10 university.

⬆ 1 ⬇   Share   •••

maxToTheJ 2 years ago

> I want to make sure people who are interested in the field don't feel like they have no option to get involved in AI/ML without following a PhD program from a top 10 university.

I think the problem has multiple dimensions happening

A) Data science is slowly becoming more professional which means more and more doors that used to be open are closing. This is similar to what happened in CS with programmers where there was a time you could join without even completing high school but now that door is all but closed as software development became more professional

B) The outlook for academic science is bleak . Academic science is very codependent with government and the current climate for science ranges from lukewarm to downright adversarial. These unemployed or discouraged scientists still have to work so they move over to data science and ML positions. This floods the market with adaptable talent for the positions opening up

I am not sure what the best path for a bachelors is outside of networking hard or developing a very strong expertise in a subject (the type of kids whose experience started with building neural nets for fun in high school). The latter I assume isnt asking the type of question OP is asking because at that age you would gain mentors to get that strong expertise so they probably fit into the well connected network group

⬆ 1 ⬇   Share   •••

ihugyou 2 years ago

ML engineering roles.

Anyone who says otherwise is likely mistaken what a research scientist is, and most aspiring people on this sub are, unfortunately.

⬆ 8 ⬇   Share   ···

technochickenmaster 2 years ago

I know Google and Facebook tier companies are in high demand but still. As an undergrad in a non top ten college myself we are told everyday that there is a shortage of datascientists, that people are getting hired left and right for huge amounts of money etc. Is it really necessary to have 3 years work experience/ get in via sneaky ways ?

From what I understand the OP has already two MScs and a year work experience, I'll have only one BSc. Am I screwed?

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maxToTheJ 2 years ago

> As an undergrad in a non top ten college myself we are told everyday that there is a shortage of datascientists, that people are getting hired left and right for huge amounts of money etc. Is it really necessary to have 3 years work experience/ get in via sneaky ways ?

Yes. There is no shortage . Colleges are being disingenuous. The more accurate statement for undergrads is "there are data analyst jobs available and if you are a well connected bs'er you can get a data science job doing a/b testing or something simple and fake it until you make it"

⬆ 3 ⬇   Share   ···

technochickenmaster 2 years ago

Well, shit.

⬆ 3 ⬇   Share   ···

hpbrowntown 2 years ago

I moved into the ML/AI space a year out of undergrad, it was a lateral move within the company. Given that I was already in an analyst position, the ML team knew I would learn on the job, and I spent a couple hours every day reading textbooks and papers to keep up. It's definitely possible to do right out of college just make sure you're doing the work to keep up with the space

⬆ 2 ⬇   Share   ···

technochickenmaster 2 years ago

I don't know anymore, from reading the answers in the thread, it would seem like a PhD would be required. Plus by going for a PhD directly I would not make the

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Nick7hill 2 years ago

Well said!

⬆ 1 ⬇ Share ...

inkognit **ML Engineer** 2 years ago

I work as a Machine Learning Scientist for a start-up, which in theory means I get to do research in ML. Well, it turns out that in practice, as a small company, you have to spend most of your time doing engineering stuff, and you only get 5-10% of your time to do "real research".

Most small companies don't do research. Real research in the industry it's mostly done by the big fish as they can afford to have a dedicated workforce to do so.

At best, you'll get a position like I have at the moment, but you can not expect too much from it in terms of research.

Because of this, I'm about to change companies to a Machine Learning Engineer position in a AI consultancy company. This way, at least I get to work with the state of the art in ML and apply it to different problems, which for me is a lot more fun, since I'm not doing actual research most of the time.

I hope my insight helps somehow.

PS: Regarding a PhD, I also applied to one. My perspective is that you need one in order to climb the ranks in seniority in the industry if you desire a hands on position, as opposed to a managing one.

⬆ 8 ⬇ Give Award Share Report Save

ozansener 2 years ago

I think 5-10% "real research" is quite normal for any product oriented engineering company. If you are building something which needs to work, it will probably take around that much engineering/research ratio.

⬆ 10 ⬇ Share ...

inkognit **ML Engineer** 2 years ago

I agree, but I think OP had a different perspective, as did I when I first started the job.

That's why I claimed "real-research" is only done by the big companies that can afford it

⬆ 2 ⬇ Share ...

rrenauww 🎤 2 years ago

Wow, really bursting the bubble I had on startups there ;)

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state of the art ML.

⬆ 3 ⬇   Share ⋯

inkognit **ML Engineer** 2 years ago

I will PM you with that ;)

⬆ 1 ⬇   Share ⋯

rrenauww 🎤 2 years ago

Thanks !

I really think a list of "real" AI/ML companies could be a nice addition to the sidebar.
Is it feasible ? Maybe not 100% but it would be very nice.

⬆ 3 ⬇   Share ⋯

[deleted] 2 years ago

> I haven't been able to go past the HR phone interview (I have applied worldwide). Seeing
> as these positions ask for PhDs or MScs, my questions would be:
>
> Considering my background and experience, am I deluded in thinking I have a shot at the
> big ones ?
>
> If I don't have a shot, why? Is it because of a lack of education ? the perceived quality of
> my education (not stanford or MIT) ? Is it because I pigeonholed myself in a consulting job
> ?

I don't think it depends on the degree and the reputation of the school necessarily (although
it might help). I think it depends more on a) your project portfolio (showing what you can
do/already did) and b) how you present yourself (knowledge + personality) during the
interviews.

Just having a Bachelor's degree while being in a grad program at a mid-tier US college at that
time, I did the phone tech interview with Google, which I passed. So it wouldn't say that
either a Ph.D. or being at a prestigious school are necessary to be considered.

I eventually decided not to pursue this further though, (I didn't go to the campus interview)
because during the interview, I realized that this company wouldn't be for me: I would want
to know what I will be working on before I join the company, not afterwards -- or in other
words, how can I be passionate about my job if I don't know what it is, yet.
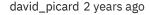
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LegacyAngel 2 years ago

Interview with Google as software engineer or ML engineer/researcher/data scientist?

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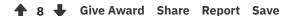
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david_picard 2 years ago

There are many available PhDs that have defended recently and have already a good research experience as attested by their publications, why would a company hire you and not them? You have no experience in AI research, and probably no experience in research whatever the domain since the typical French engineering degree has very limited options in that regard.

The only place that is going to accept you to do research without any prior experience is the academia if you start a PhD, because it's basically its job.

Now, that being said, don't start a PhD if you only want the diploma and not to enjoy the journey. People that do that generally do not finish their PhD. You have to believe that working like crazy for 3 years on an insignificant subject with a crappy salary is all what you ever dreamed of.

⬆ **8** ⬇   **Give Award**   **Share**   **Report**   **Save**

rrenauww 🎤 2 years ago

So to understand you correctly there is absolutely no way to work in/with an AI R&D team without a PhD ?

I have a "master recherche" in applied mathematics, does this not count ? I did have to write a master thesis for it (I did mine on WGANs)

⬆ **2** ⬇   **Share**   ⋯

BeatLeJuce **Researcher** 2 years ago

Not the guy you're answering to, but: For things like Google Brain or Facebook AI: pretty much absolutely impossible, yes. Why would they pick you, when they can pick the creme de la creme? Forget about it. For a random R&D team that does some AI in some other company: unlikely, but not impossible.

Furthermore: did you publish your master thesis at some conference? If you didn't, it's not counting for much.

And lastly: PhD students work on AI full time and are easy to get in. Why do you want to work in a research lab and not simply in academia?

⬆ **3** ⬇   **Share**   ⋯

rrenauww 🎤 2 years ago

My understanding was that getting any random PhD (not top 10) would be only marginally better than no PhD. That it was hard to get out of academia once you are inside.

Search

wrangling huge datasets (DNA etc) etc.

⬆ 0 ⬇ Share ⋯

BeatLeJuce **Researcher** 2 years ago · *edited 2 years ago*

If you want to do applied research, this is almost always coupled with a field anyway (as it is applying ML to something like NLP or vision or something). Besides, lots of labs aren't "pure" AI and still publish at NIPS.

As far as "random PhD" goes: doing a PhD for the sake of it in a mediocre department is likely a waste of time. But you don't need to be in a "top 10" university. You do need to do deliver solid, relevant and novel work, however (and have an advisor that can help you do that). I can only share my own experience: My university is far from "top 10", but our lab does have a good track record at the important conferences (NIPS, ICML, ICLR, ...), and we do what I'd consider consistently good research. During my PhD, as my research started getting some attention, I got more and more unsolicited offers from start-ups, collaborators and the big industry AI labs. So obviously the choice of institution doesn't count as much; a PhD study is what you make of it.

(If you do decide to go down this route: the one crucial aspect that you cannot under any circumstances ignore is the choice of advisor, which IMO is much more crucial than the choice of university. Make sure you pick someone that can show you not just how to murk along in the scientific world, but one that forces you to excel in your field and can open doors for you, and the world will be your oister. As a rule of thumb, I'd recommend to pick someone who is capable of publishing at ICML/NIPS and isn't overrun with students already)

EDIT: so I guess you could say your university doesn't matter much, but your advisor/lab should indeed be in the top 100 or so.

⬆ 4 ⬇ Share ⋯

rrenauww 🎤 2 years ago

Top 10 was a bit of an exaggeration ;)

Good advisors and good university are generally correlated though right ?

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BeatLeJuce **Researcher** 2 years ago · *edited 2 years ago*

Correlated, but not really that strongly. As a few obvious examples e.g. the university of Toronto & Montreal have some very, very, very well respected Deep Learners, yet both universities aren't generally regarded as top10 in general (though of course they are by no means bad universities). And some very highly respected people are at very small universities you might never have heard of (e.g. Neil Lawrence was at Sheffield, and Hugo

the flip side, I wouldn't place MIT among the "top 10 universities for machine learning", despite what you might think. Yes, there are people there who do *very* good research, but there are other universities who are just stronger in this area right now. ^{please don't kill me, MIT ppl} . But of course, top-tier universities tend to attract very good talent, both with regards to professors and sutdents. And they usually have good programs in place that will definitely help you do better research. Simply because they have good teachers and force you to learn a lot of stuff, and because the university name opens a lot of doors for you anyways. They push you more towards doing good research, regardless of advisor. But there are certainly lot of very good ML labs outside of the big universities.

⬆ **2** ⬇   Share   ⋯

ml_lad 2 years ago

Obviously understand if you don't want to identify yourself, but could you list out what may be some less prominent ("non-top 10") universities that are still doing stellar work in specific fields? I am very curious to better know the landscape.

⬆ **1** ⬇   Share   ⋯

BeatLeJuce **Researcher** 2 years ago · edited 2 years ago

In general, people who manage to consistently publish at top tier conferences/journal are the people to look out for. In fundamental ML research, those are NIPS and ICML (there's other decent ones like ICLR, COLT, AISTATS, UAI, ... , but those two are the most general) . So if you see someone who got a track record of publishing there, that's a very good indication that they are doing a very good job. Other very obviously stellar people are the organizers/committee people at such conferences. Likewise, if someone mainly publishes at lower-tier conferences (and for someone who is not in the field, this is unfortunately hard to judge), that's a bad sign. So if you want to judge someone's research capabilities, look at where they publish. (note: of course, this says nothing about their true ML skills, just about how well they do research).

⬆ **1** ⬇   Share   ⋯

david_picard 2 years ago

It's not so much the university you get your PhD from than your scientific production during the PhD. If you do your PhD at MIT but do not have any major conference or journal paper at the end, people will think you are a joke (both in academia and in the industry). Conversely, if you do your PhD in some random university but you manage to finish with 2 NIPS, 1 ICML and a TPAMI, you will have no problem to find a good position.

Search

trexd___ 2 years ago

http://matt.might.net/articles/phd-school-in-pictures/ Here's a great gragh that illustrates the purpose of obtaining a Phd.

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Comment deleted by user 2 years ago

nlgranger 2 years ago

The engineering degree in France is not delivered by universities, it follows a cursus in (smaller) separate institutions which persist mostly for historical reasons and because it works ok so why not :-).

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sobe86 2 years ago · edited 2 years ago

Engineering degrees from the top engineering schools in France are pretty badass. My gf has one, the amount of stuff they cover is really impressive.

⬆ 9 ⬇ Share ⋯

⊕ [deleted] -12 points · 2 years ago 0 children

chickenshitnibba 2 years ago

The French education is pretty particular. They really like to do things their way.

⬆ 3 ⬇ Share ⋯

DrPharael 2 years ago

This is especially relevant here, because the French education system branches into (i) the universities and (ii) the engineering schools. The latter ones are considered as elite schools for historical reasons and are therefore attracting most of the best students.

The point is that because of this, graduating from such a school has been considered more "prestigious" than doing a PhD; and in fact your chances of getting a job afterwards, even in R&D, were higher. As a result, students did not feel the need to do a PhD after their engineering schools (like OP). This is however changing a bit now.

⬆ 2 ⬇ Share ⋯

Wizard_Sleeve_Vagina 2 years ago

If you're getting phone interviews, it isn't your qualifications holding you back. Practice your answers to behavioural interview questions, and review technical details of your past

rrenauww 🎤 2 years ago

I didn't want to publish too much personal identifiable information, but the only calls I got were from Google and Amazon. They wanted me for their Cloud divisions in a more big data not ML type position that I'm in no way qualified for (I work with spark a lot, but am in no way an expert in database management). No calls for the more AI type positions, hence this post.

⬆ 7 ⬇ Share ⋯

Wizard_Sleeve_Vagina 2 years ago

I was able to get through the phone screens for a data science position at Amazon with only a BSc. It is about working on similar projects, and being able to communicate methods and learnings.

⬆ 2 ⬇ Share ⋯

rrenauww 🎤 2 years ago

I got through too, it's just that I am in no way qualified or willing (at least for now, if it is my only chance I'll take it) to work as a big data engineer.

⬆ 3 ⬇ Share ⋯

FishZebra 2 years ago

To be fair, qualifications do not matter that much in the industry. You have a MSc, so you are capable of learning things quite fast so if you at least know some of the basics they will probably accept you based on "qualifications".

⬆ 3 ⬇ Share ⋯

rrenauww 🎤 2 years ago

That's what I originally thought too, but after 3 months of not finding anything I really am starting to self doubt a lot.

⬆ 1 ⬇ Share ⋯

fimari 2 years ago

Go to people who are searching (no Amazon and Google they have a loooot of choice) look at boring businesses, industrial manufactures, Oil and Gas industry, city planing agency's and so on - right now those are the people who want guys like you they will give positions where you can do something, where you have some free space and tons of data.

⬆ 1 ⬇ Share ⋯

totallynotarogueai 2 years ago

Good for you man, but that doesn't really answer the question.

a3lentyr 2 years ago

French engineering degree and PhD here, Basically do a PhD if you want to have 3 years to explore a subject (you don't get this kind of freedom elsewhere), but it does not help you much to get a job in AI in France. It does not hinder you either - you are considered as a +3 years of experiences.

In france you have CIFRE PhD, they are not easy to get but you are almost guaranteed to be hired by a company after.

If you can move in France, you usually can find a company hiring in data science somewhere - for instance at the time there is lot of things happening in cars related company e.g continental, ... most company tend though to offer jobs with a mix of big data/devops/datascience, so you may be disappointed if you are looking for 100% data science... however, in my experience algorithmes are often the easy part in an industry pipeline, the hard part being the managment of data.

⬆ 3 ⬇   Give Award   Share   Report   Save

technochickenmaster 2 years ago

Do the big AI companies like Google Facebook Amazon etc offer CIFRE? From what I can read online this is pretty great ! PhD + guaranteed job at the end is a nice deal !

⬆ 1 ⬇   Share   ···

DrPharael 2 years ago

I have actually never seen such grants from the GAFA, probably because they don't have large research groups in France (well, Facebook has one in Paris now so this might change).

I think they rather offer internships of several months to students already enrolled in a PhD program, which is also one interesting option.

⬆ 2 ⬇   Share   ···

_sulo 2 years ago

Facebook AI Research has a few CIFRE students, Heuritech also has one and I'm sure some other companies do as well.

⬆ 1 ⬇   Share   ···

DrPharael 2 years ago

I have never heard of Heuritech but of course I'm not saying that there is no CIFRE students in this field (I've been one myself), I was only referring to the big AI companies as mentioned by the original comment.

But fair enough for Facebook (pun intended), it's not surprising that they use such a mechanism since they have a research team in Paris now.

nlgranger 2 years ago

Disclaimer: I'm doing a PhD in ML after a engineering degree (French engineering school as well), but I haven't been in contact with companies so far. My last year of engineering school was a specialization in ML and an internship in an academic lab. I then continued with a PhD in the same lab. I'd say that my training was insufficient at the start of the PhD and I regret not spending a year or two with an actual ML master in university (maybe the M2 would be sufficient if the basics are already known).

basically (and this is only my opinion):

- you can make a good master degree like the one at Orsay University, probably the one at UPMC is good also.

- make an intership or work as a research engineer in an academic lab, it will give you more time to learn than if you work in a startup. If you have done some master courses before, you will have contacts to find a position and you will be more confident of finding a good team (FYI: position offers are a legal obligations but are often written once a candidate is already selected, so you need contacts).

- not all start-ups open-source the code, authorship will not necessarily point to you

- a friend of mine started looking for a job and was asked if he scored on Kaggle, so you may want to have a look at that.

- I have been told that only the PhD is valued outside of France, in France the Master level + experience should suffice.

- don't start with the PhD right away, be sure to know the team, the subject etc...

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StrawberryNumberNine 2 years ago

The M2 MVA in ENS Cachan is supposed to be one of the best to jump-start your ML research also.

▲ 2 ▼   Share   ···

snendroid-ai **ML Engineer** 2 years ago

nope

▲ 2 ▼   Give Award   Share   Report   Save

Roboserg 2 years ago

no. For applied research or eng. job M.Sc. is enough. We have BOSH research facility nearby that does applied research for autonomous cars. You DON'T need a PhD to make a NN for pedestrian / sign detection etc. You DO have to have M.Sc as a B.Sc. would lack knowledge. Thats what M.Sc is for. PHD is for fundamental research.

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I technically only have a Masters and I work with the title of research scientist at a big company's R&D lab. Though, I previously worked at a startup that got bought by Microsoft as a data scientist, and in practice this current lab is more focused on applied than basic research.

Due to my boss being awesome and giving me free rein on a lot of things, I actually pursue a fair number of research experiments that range from the highly practical (i.e. can we solve company problem x with model y), to the highly theoretical (i.e. let's explore what happens if we modify this deep learning algorithm in this manner that no one seems to have tried or at least published anywhere, based on some ideas inspired by neuroscience).

That being said, I still have to do a fair bit of engineering to prove to HQ that our research is worth continuing, and prototype demos every few months are a thing.

Personally I think a PhD is only worth it if you plan to go to a particularly reputable academic lab like MILA and study with someone like Bengio. Otherwise, you're probably better off proving your worth by making some spectacular research project and showing it off somewhere online. Admittedly not everyone has the resources to pull this off, but it seems like the field is already kind of swapped with folks who are either wannabe ML engineers who took Andrew Ng's course and now consider themselves experts, or actual PhDs who jumped on the bandwagon and know a bunch of the theory, but have little actual experience doing meaningful stuff.

I'd rather take the latter than the former, but honestly, someone who can show both theoretical knowledge and practical experience is best.

Also, I didn't get into Google back when I first applied fresh out of my masters. They are notoriously tough with interviews and prefer false negatives to false positives significantly. Remember that they and Facebook and to a lesser extent places like Amazon and Microsoft can get the real cream of the crop. My understanding is that you need more than any old PhD, you need one from MILA or another top lab in the field, and have published in places like ICML or NIPS.

In a sense I got lucky because I got into industry right before the market got flooded with people claiming to understand AI and ML who really don't, and so companies have taken a very skeptical stance on hiring to filter out the wannabes.

When in doubt, don't close any doors. Continue to apply to places in industry and also apply to universities with reputable PhD programs and see what sticks. Don't be afraid to consider companies that aren't super famous either. A lot of lesser known labs are actually working very hard to catch up and attempt to beat the giants at their own game, and in some cases their relative agility gives them a potential advantage over the more established organizations that are set in their ways, beholden to certain egos, etc.

The most important tidbit of advice though would be to prove your ability with data. Evidence of actual research projects of some kind is good. AI and ML are perhaps one of the only fields

costs money that you might not have, but so does a PhD.

Though since you're from Paris or at least France, you should definitely consider Bengio's Montreal-based group, or LeCun's New York based group. They both speak French and probably don't mind another Francophone student. Though being Godfathers of the field, they both are likely swapped with applications so you'll definitely want to distinguish yourself in some way.

TL;DR: You're not deluded, but you need to be more clever and find ways to stand out. Consider less prestigious options that are still respectable. If you get a PhD, make it count by getting it from a top tier lab. Prove your worth with data points that show you have potential. Best of luck!

⬆ 5 ⬇   Give Award   Share   Report   Save

rrenauww 🎤 2 years ago

Thanks, I think you've pretty much summed up what has been said in this thread in your TL;DR.

⬆ 1 ⬇   Share   ⋯

serge_cell 2 years ago

If you want to work for startup and have proven history of successful industry-research projects (github or word of mouth) PhD is not needed. If you want to work for research division of big company PhD is a must.

⬆ 2 ⬇   Give Award   Share   Report   Save

ephemeraI 2 years ago

If your goal is to do applied research in industry, I would strongly advise against spending 4-5 years on a PhD. If your goal is to do pure/fundamental research at a top company straight out of school, or have a career in academia, then I might consider it.

⬆ 1 ⬇   Give Award   Share   Report   Save

rrenauww 🎤 2 years ago

So what would you have me do to maximize my chances to do applied research in industry ?

Publish stuff to my github ? Start an AI blog like has been proposed in this thread ? Something else ?

⬆ 2 ⬇   Share   ⋯

ephemeraI 2 years ago

A few high-quality projects on your github and maybe a summary document or personal website describing them will definitely help you out if you don't have that to some degree. With an MSc as well as the experience at your current position you should have

aiming for, but at least will let you start getting experience in the type of work that you're looking for (which your current job obviously isn't) and help you develop yourself and your skills to get into Google/FB or wherever your end goal is.

⬆ 1 ⬇   Share   ⋯

idansc 2 years ago

Front-tier Research teams, such as FB or Google, require a PhD. Practically, a PhD student is not necessarily stronger than master student. Yet a PhD student should know how to write academic papers and conduct research without supervision, which is more important for research groups. When you see the terms "applied" in the position description, it could indicate that a Master should be enough. Last comment, like everything, connections really matters, and usually publishing papers, and attend to front tier conferences helps to get those kind of connections.

⬆ 1 ⬇   Give Award   Share   Report   Save

[deleted] 2 years ago

No.

⬆ 0 ⬇   Share   Report   Save