

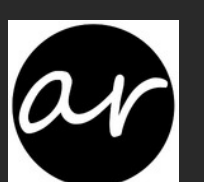


# DS/AI Self-Starter Handbook

BUILD YOUR OWN ROADMAP

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Ankit Rathi



From a time around when DS/AI field started picking up, every other day I get at least 8–10 messages from DS/AI starters & enthusiasts on ‘How can I get into DS/AI field?’. Over a while, I have improvised my response based on the follow-up questions they ask like:

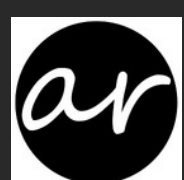
1. What is the difference between DS, ML, DL, AI, DM?
2. What are the roles in DS/AI, who does what?
3. What concepts, processes & tools they need to learn?
4. Which books, courses, etc they need to refer to?
5. How to build a DS/AI portfolio?
6. How to write a resume for DS/AI?
7. How to build a helpful network?
8. How to search for the job?
9. How to prepare for the interview?
10. How to stay up to date in this still-evolving field?

You can notice that these questions are not conceptual ones and there is no dedicated material to address these roadblocks. I thought why not to build a framework or a road-map for DS/AI starters and enthusiasts so that I need not to answer the same type of questions again and again. And that is when I started documenting what a starter or enthusiast need to do step by step in order to reach a level when he is ready to tackle any challenge thrown to him. My answer to the above questions in a structured way to help DS/AI starters & enthusiasts is this book. This book covers the framework to launch your DS/AI career in 8 chapters.

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Ankit Rathi provides unique combination of Data Engineering (DB/ETL/DWH/BI)/Architecture (Data Management & Governance) & Data Science (ML/DL/AI) with more than a decade of demonstrated history of working in IT industry using Data & Analytics. His interest lies primarily in building end to end DS/AI applications/products following best practices of Data Engineering and Architecture.

In his free time, he blogs about various topics on DS/AI field & tries to simplify it for starters & enthusiasts.



# DS/AI Self-Starter Handbook

Build Your Own Roadmap

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Ankit Rath





*To my wife, Divya, who's always accepted me the way I am and supported my hustle, drive & ambition.*

*To my children, Aarsh & Driti, who are the reason to wake up every morning and work as hard as I can.*



DS/AI Self-Starter handbook is a great resource for aspirants starting in the space of Data Science. It covers approach and useful resources that can help in your learning journey and written by one who himself is an Data Science practitioner. I recommend this to anyone who are aspiring to get into Data Science and are looking for insights on how and where to get started.

**Srivatsan Srinivasan**

Chief Data Scientist (Cognizant)

Wow, this is very impressive! It has taken some time to review, but WOW!

I should have had you as a co-author next time!!!

**T. Scott Clendaniel**

Chief Data Scientist (Legg Mason)

To be great data scientist you should emphasis on skillset and mindset. Where a lot of book that give you skill set, this is the first book I read that dedicating to shape data scientist mindset.

**Nabih Ibrahim Bawazir**

Data Science Head (Datanest)

Extremely laudable & heroic attempt to put all your thoughts and experience together to help people.

**Sumit Pal**

Big Data Architect (Qcentive)

Ankit has done a great job summarizing what is possibly one of the toughest and most frequently asked questions, "How to get started with data science?". Packed with information, this book will definitely be helpful for people from both academia and industry looking to get started on their own Data Science and AI journey.

**Dipanjan Sarkar**

Data Scientist (Rad Hat)

I think it is a brilliant book for starting Career in Data Science as New Entrants to Data Science often deviate from Path to reach End Goal and this Book tries to solve that Problem in a easy way. I would really like to Congratulate Ankit for Providing Data Science Career Steps in this useful manner.

**Yatin Bhatia**

Data Scientist (RxLogix)



An indispensable guide and a valuable resource for anyone seeking to enter the field of Data Science. Replete with great advice directly from the author's personal experience.

**Parul Pandey**

Data Science Evangelist (H2O.ai)

This book kicks you into the right direction definitely worth reading for the beginners trying to break into DS/AI.

**Avik Jain**

Machine Learning Intern (EMA Solutions)

If you are one among people struggling to identify the right book for data science, this book would probably help to understand where to start, how to prepare, how to develop the habit of continuous learning.

**Vishnu Durgha Prasaad**

Data Science Practitioner



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## About the Author



Ankit Rath is currently working as a Lead Architect-DS/AI at SITA aero. He is a Data Science (ML/DL/AI) practitioner with more than a decade of demonstrated history of working in IT industry using Data & Analytics. His interest lies primarily in the theory & application of artificial intelligence, particularly in developing business applications for machine learning and deep learning. Ankit's work at SITA aero has revolved around designing FlightPredictor product & building the CoE capability. During his tenure as a Principal Consultant at Genpact HCM, Ankit architected and deployed machine learning pipelines for various clients across different industries like Insurance, F&A. He was previously a Tech Lead at RBS IDC where he designed and developed various data intensive applications in AML & Mortgages area. Ankit is a well-known author for various publications (Towards Data Science, Analytics Vidhya etc) on Medium where he actively contributes by writing blog-posts on concepts & latest trends in Data Science. His blog-series on 'Probability & Statistics for Data Science' has been well received by Data Science community in 2018. He is followed by around 30K data science practitioners & enthusiasts on LinkedIn.

U0.1: Webpage: <https://www.ankitrathi.com/>



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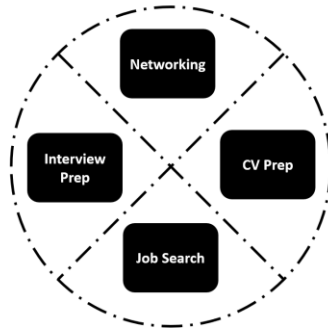
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# Networking & Landing the Job



So you have done all your homework, you traverse through the DS/AI landscape, you built required concepts and learnt relevant tools and you have started working on your portfolio as well.

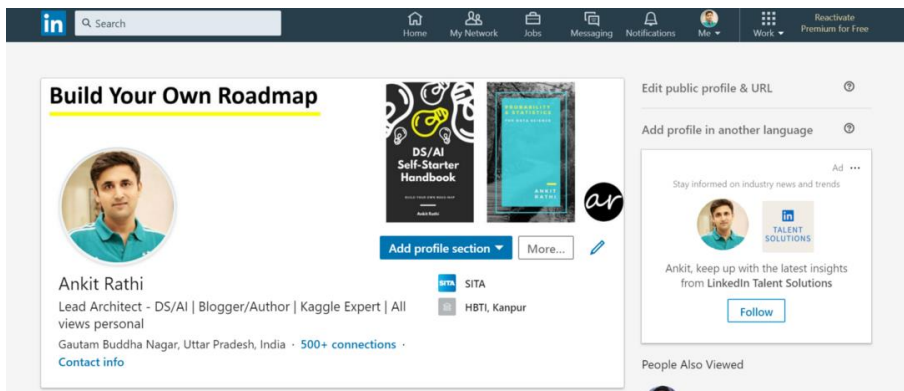
Now its time to network with people, work on your CV/resume, start looking for a job and prepare for the interview.



## Networking & Landing the Job

DS/AI: Self-Starter Kit

### 6.1 Network on LinkedIn



When it comes to networking on LinkedIn, there are two primary functions — just like in real-world networking: Building your network and nurturing relationships. I'll cover both in this chapter.



## Enrich Profile

Before using LinkedIn for networking, you need to update your profile and complete all sections to make it authentic, relevant, and compelling.

I would suggest you to avoid reaching out to new contacts and accepting connection requests until your profile was in tip-top shape. You need to assume that people will check out your profile when you are connecting. And with many connections, that's your first impression.

*Deny it all you want but first impression matters a lot.*

Make sure your photo, headline, and summary all tell a compelling story of who you are and what you have to offer. Show that you're worth connecting with! You can also request a recommendation from someone you've worked with so new connections have an impression of how you have helped others.

## Interact

Being on LinkedIn for namesake is not enough, you need to interact with people to expand the network and get the visibility. Provide status updates on a regular basis. It keeps you visible to the people in your brand community.

Like and comment on LinkedIn posts that you think are valuable, and share the posts with your connections and other groups you belong to. Share content you find at other sites — like Fast Company or Forbes or Huffington Post — that you think would be valuable.

*When sharing, remember to add content saying why you think it is valuable and expressing your point of view.*

## **Publish**

If you don't have a blog, you can publish your articles on LinkedIn. As for the blog, you need to keep your article engaging, either it should entertain or educate or inspire. If your article does all of the three, nothing is better than that.

Write articles to solve problems. Divide your article into logical sections, like heading, introduction, main points and conclusion.

*Keep images, embed content if required, to tell the story in your words.*

More post likes should also get you LinkedIn shares, post views, and comments according to correlation data. You can encourage people to like your post with a call to action.

## Reach Out

When you're reaching out, remember to customize the request instead of using the default "I'd like to add you to my network." You can even customize requests when using the LinkedIn mobile app.

## Accept Requests

Know your criteria for accepting requests (and remember what you lose if you are a closed networker). LinkedIn alerts you when you have requested. Get in the habit of accepting them soon after receiving them.

## Guide/Help Others


LinkedIn does the heavy lifting when it comes to staying on top of people in your network. They provide notifications when someone you know has a birthday, work anniversary, or new job.


You have the option of "liking" the notification or sending a message. I suggest choosing "send a message" and writing a personal note. Determine a time of day you will check-in and get in the habit of doing it daily so you don't miss any of your connections' important dates.

Now you have the keys for unlocking the power of networking on LinkedIn.

*In all of these interactions, remember that successful personal branding is the result of being authentic and being consistent.*

## 6.2 Prepare the CV

[Download PDF](#)



### Ankit Rath

Lead Data Architect

📍 Delhi/NCR, India  
☎ +91 9891650969  
✉ [rathi.ankit@gmail.com](mailto:rathi.ankit@gmail.com)  
in [linkedin.com/in/ankitrathi](https://www.linkedin.com/in/ankitrathi)  
🌐 [medium.com/@rathi.ankit](https://medium.com/@rathi.ankit)

#### Summary

- Seasoned Data Science Architect, Kaggle expert & Data blogger/author with 13 years in data engineering/architecture and 5 years in data science/machine learning.
- Designed & developed many data intensive technology solutions using various tools in data architecture, data science, big data & cloud.
- Translated complex business problems into technology & analytics solutions for data-driven decision making.
- Demonstrated knowledge of the business success drivers, industry trends, regulatory issues and competitive marketplace.
- Continuously in sync with latest developments in the analytics field methodologies and technologies.
- Participating in Kaggle (Data Science) competitions since 2014, achieved Kaggle Expert level in 2017.
- Experienced in leading technical teams and handling technical & business stakeholders.

### Keep it Short

You don't have to list everything you've ever done. Try making a master resume which has all of your work history and then pulls what's most relevant for each job.

### Don't put Objective

Objective serves no purpose in your resume since it doesn't help you distinguish yourself while taking up spaces that can be better utilized to showcase more useful information about you such as projects, experiences, etc.

## Photo on CV

Based on in which region you are applying, you need to decide whether you can put your picture. While this is common in some countries in Europe and South America, it is not appropriate in the US and Asia.

## Always Proofread

Having typos or grammar errors in your resume can be the quickest way to have your application eliminated. Use spell-check and have a friend to check it over.

## Mention Accomplishments

Quantify your accomplishments where possible, use verbs to start the bullet points.

## Add Cover Letter

If there is a place to submit a cover letter, do so. Just like your resume, you can have a master cover letter that you pull paragraphs from. Tailor at least the first and closing paragraph to the company and make sure you get their name correct.

## Put Results & Links

Include the results and links of your projects. For instance, if you are doing a competition on Kaggle, it will be important to mention your ranking & you can put your solution on GitHub.

## **Mention Portfolio**

Mention your LinkedIn, GitHub, Kaggle profiles links on your resume. It can reveal more useful information about yourself and it is also good to showcase the relevant work you have done.

## **Tailor for Job Description**

It is crucial that you tailor your description of experience towards the job's requirement because it can make your skills and experience seem more relevant and better fit for the position.

## **Highlight Coursework**

You should list coursework that is relevant to the position you are applying to. It is a quick way to show hiring managers your background, which can have some influences in their decision on inviting you for interviews.

## **Don't put Common Projects**

Common projects and homework are highly guided problems that will help you to stand out. You should include projects that demonstrate your ability to solve real-world problems and your interests.

## **Don't Rate your Skills**

Numerical rating your skills are not meaningful since they are not standardized or calibrated.

## 6.3 Search for the Job



### Have a Growth Mindset

Growth Mindset is believing that their most basic abilities can be developed through dedication and hard work — brains and talent are just the starting point. Don't use "talent" to describe others as an excuse for your laziness. What you need is to learn the right way and practice many times until you are good at it.

### Take Notes

Take note of all the interview questions you have been asked, especially those questions you failed to answer. You can fail again, but do not fail with the same question. Most of the time, you learn more about the topic when you reflect on the notes taken.

## Browse widely

Jobs in DS/AI go by many names besides data scientist. These include product analyst, data analyst, research scientist, quantitative analyst, and machine learning engineer. Try searching for all of these terms to find positions and then use the description to evaluate the fit.

## Self-reflect

Rather than applying to every type of data science job you find, think about your strengths and where you want to specialize. There are data scientists who have strong statistics skill and the ability to work with messy data and communicate results. While other data scientists have very strong coding skills, maybe have a background in software engineering, and focus on putting machine learning models into production.

## Don't demand perfection

Your first job in the field probably would not be your dream one. You may need to start out by moving to a position where you can leverage your other skills. That doesn't mean you shouldn't have certain requirements and preferences, but it does mean you'll want to have some flexibility. The most important criteria for your first job may be that it has a supportive environment, with lots of other analysts, where you can learn a lot.

## Don't undersell yourself

Job descriptions are generally wish-lists with some flexibility. If you meet 80% of the requirements but are otherwise a good fit, you should still apply. With that said, be wary of job descriptions that describe a unicorn



where they need every skill on earth. It usually means they don't know what they're looking for and they expect a data scientist to come and solve all their problems without any support.

## **Look on LinkedIn**

Check if you know anyone at the company you're interested in. If you don't know anyone, see if there's anyone in your alumni networks. You can also check for second connections and see if the person who bridges you can introduce you. Many jobs get hundreds if not thousands of applications for each position and having someone refer you or give you feedback on what the team is looking for is enormously helpful.

## **Check out Meetups/Conferences**

Sometimes hiring managers will come to meetups or conferences to recruit. You may also meet someone in the company or sub-industry you're interested in. If you ask if their company has an opening or if they can refer you, though, you'll probably be directed to the company's career page. This is why it's important to build your network before you need it, means starting off with a strong ask is not a great way to build a mutually fulfilling relationship.

## 6.4 Crack the interview



### Prepare & Practice

Most of the questions (at least 60–70%) are based on your background and skills required for the job. Which means you can prepare a list of questions that can be asked to you and keep your responses comprehensive yet short.

You can also ask the recruiter about the number of rounds and what is expected at each stage so get as much information as you can and keep yourself prepared.

## **The Resume is a Fair Game**

Whatever you have mentioned in your resume is a fair game. So keep everything on your fingertips. If you have mentioned a skill or a course, be prepared to be grilled about that.

## **Research about the Company**

You may have done some research when writing your cover letter, but once you get the interview, dig a little deeper. In addition to the tips in the thread below, find out about your interviewers' professional accomplishments. I was very impressed when a candidate I was interviewing asked some technical questions about a presentation I had given.

## **Have your Questions Ready**

Each interviewer should leave time for questions at the end. If they don't, that's a bad sign. Interviewing is a two-way process: you're evaluating them as much as they're evaluating you. If you don't know what to ask, you can prepare them based on what is important to you like the quality of life, culture, and management practices. You can ask each interviewer different questions to maximize how many you can get answered, but you could also try to ask multiple people the same questions to see if and how their answers differ.

## **Never Mention the Numbers**

While it is a cultural thing, in some countries it is OK to mention your current salary while in other law prohibits the recruiter to even ask for it. Whatever is the case, never mention your expected salary.

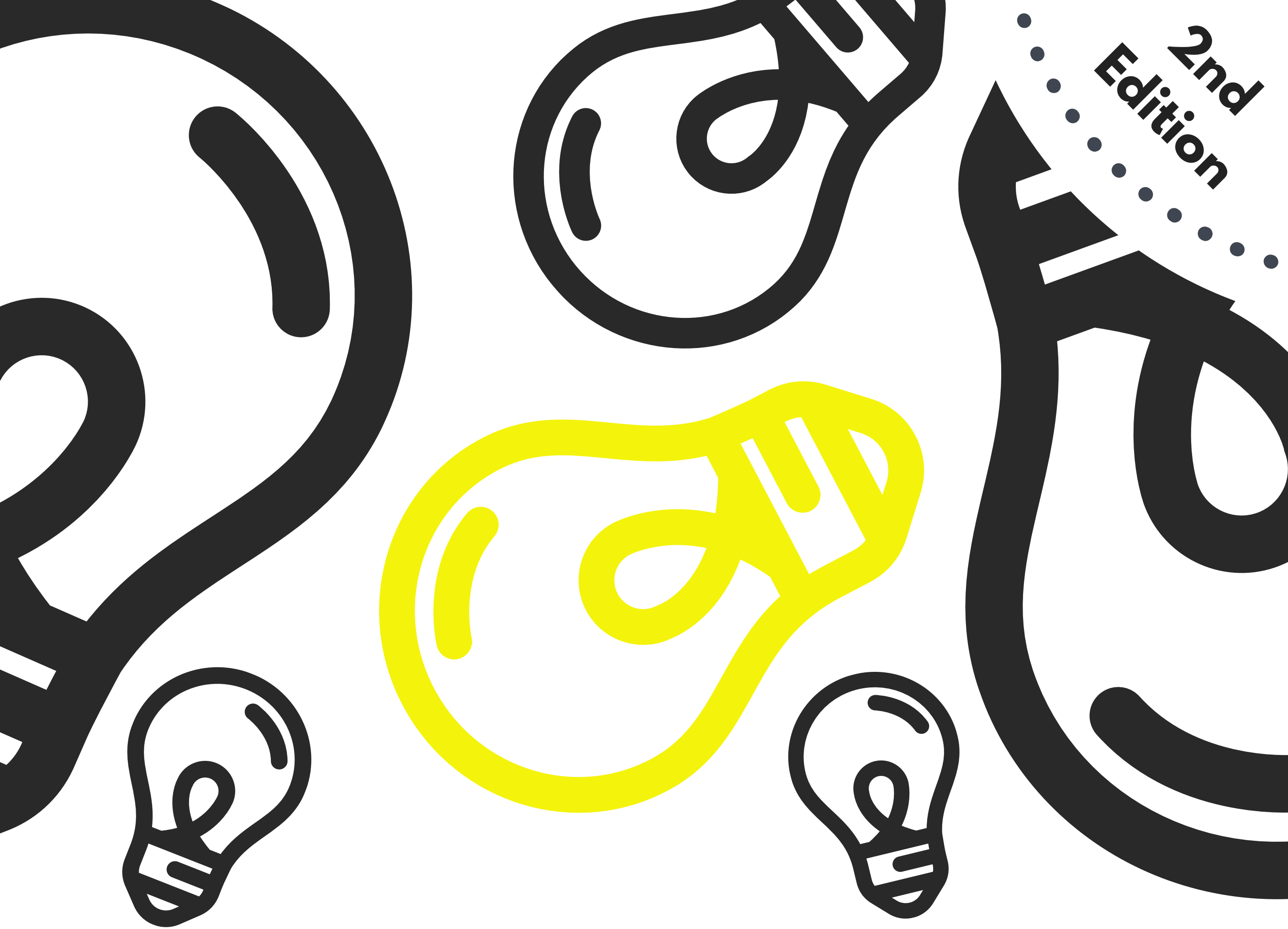
If you name a number, you risk them giving you a lower offer than they would have otherwise. Their offer should not depend on your current salary or expectations; it should be your worth in the market and similar to the salary of your peers there.

## **Handle Rejection Gracefully**

You will almost inevitably get rejected in some job interviews, maybe dozens of them. DS/AI is a competitive field and this is a very normal process that everyone goes through. If they reject you or you don't hear back from them, you can express your disappointment politely and thank them for their consideration.

You can ask for feedback, but know that many hiring managers would not be able to give you any because they want to avoid the possibility of being sued. While it is okay to take a little time to wallow, just don't lash out in public or to the hiring manager. It won't help the situation, but it will hurt your professional reputation.

2nd  
Edition



# Artificial Intelligence

## Self-Starter Handbook

BUILD YOUR OWN ROADMAP



Ankit Rathi



**Coming Soon... 2<sup>nd</sup> Edition**

**with revised content & 3 more chapters...**

**[ankitrathi.com](http://ankitrathi.com)**

From a time around when AI field started picking up, every other day I get many questions from AI starters & enthusiasts on 'How can I get into AI field?'. Over a while, I have improvised my response based on the follow-up questions they ask like:

- What is AI and why is it important?
- What is the difference between AI, ML, DL, DS, DM, BI?
- What an end-to-end AI project looks like?
- What are the roles in AI projects, who does what?
- What AI concepts & tools you need to learn?
- Which books, courses, channels etc you need to refer to?
- How to practice & build an AI portfolio?
- How to write a resume for an AI role?
- How to build a helpful network?
- How to search for the job?
- How to prepare for the interview?
- How to switch into an AI role (inside or outside)?
- How to lead an AI initiative in your organization?
- How to stay up-to-date in this ever-evolving field?

You can notice that these questions are not conceptual ones and there is no dedicated material to address these roadblocks. I thought why not to build a framework or a road-map for AI starters and enthusiasts so that I need not answer the same type of questions again and again. And that is when I started documenting what a starter or enthusiast need to do step by step in order to reach a level when he is ready to tackle any challenge thrown to him. My answer to the above questions in a structured way to help AI starters & enthusiasts is this book. This book covers the framework to launch your AI career in 11 chapters.



Ankit Rathi is a data & AI architect, published author & well-known speaker. His interest lies primarily in building end to end AI applications/products following best practices of Data Engineering and Architecture.

In his free time, he blogs about various topics on Data & AI field & tries to simplify it for starters & enthusiasts.

