IBM FUTURE IN AI (MOD3)

Module 3

What employers are looking for

Skills to build

Careers in artificial intelligence span many different industries. You can find AI jobs in private and public organizations, working on anything from healthcare to entertainment recommendations and beyond. If this sounds interesting, you should start now to build the skills you'll need.

According to labor insights from industry leaders, here are the top skills that an **AI professional** needs.

Select each card to learn more about the skills.

1. Front of cardBaseline skillsClick to flipBack of card
   - Linear algebra
   - Probability
   - Statistics
   - Signal processing
   - Big dataClick to flip

2. Front of cardWorkplace skillsClick to flipBack of card
   - Communication skills
   - Teamwork and collaboration
   - Problem solving
   - Decision making
   - Analytical thinking
   - Time management
   - Business intelligence
   - Critical thinkingClick to flip
3. Front of cardAdvanced technical skillsClick to flipBack of card
   - Programming languages (Python, R, Java, C++)
   - Frameworks and libraries (TensorFlow, SciPy, Numpy)
   - Neural networks
   - Machine learning
   - Deep learning
   - Shell scripting
   - Cluster analysis
   - Tableau
   - Microsoft Power BIClick to flip

These are some of the most important skills you'll need to be successful, not only as someone who understands AI theory, but also as a collaborator who can work with teams to develop AI products and abilities.

Your professional toolkit

This table highlights some popular AI tools, platforms, and programming languages that AI professionals use. So, it's helpful to learn how to use at least a few of them.

Tool	Purpose
Python	Python is a programming language that helps you write complex algorithms and requires minimal code. It has many pre-made libraries for advanced computing and scientific computation.
R	R programming language helps you to collect and organize data sets, apply machine learning (ML) and statistical functions, and use matrix transformations and linear algebra for data processing.
Java	Java is a programming language that's used extensively in AI for implementing mappers and reducers, intelligence programming, genetic programming, search algorithms, neural networks, ML solutions, and more.
C++	C++ is a programming language that's used in AI to enable procedural programming and manipulate hardware resources. Its flexibility and object-

	oriented functions make it highly useful in AI.
Tensorflow	Tensorflow is an open-source machine learning platform with a comprehensive and flexible set of tools, community resources, and libraries to help researchers develop sophisticated ML-powered applications with ease.
SciPy	SciPy is an open-source Python library used for solving scientific and mathematical issues. It helps users manipulate and visualize data using various commands.
NumPy	NumPy is a Python-based package used for scientific computing and advanced mathematical operations while handling massive data sets.

Source: Top 14 In-Demand Skills Required for AI Professionals, GeekFlare, by Amrita Pathak, 2022

Good things to keep in mind

Here are things to keep in mind about searching for jobs in the AI field.

Job titles are not consistent across companies that hire AI professionals. In fact, you probably won't see many job listings for "AI professional". You have to carefully review job titles and descriptions that need AI skills. You might find job titles such as the following:

- Machine learning engineer

- Machine learning scientist

- Software engineer

- Research engineer

- Robotic scientist

- Data scientist

- Business intelligence developer

- Algorithm specialist

- Natural language processing (NLP) engineer

Potential employers will likely have a preference for people with data analytics skills. They might also prefer potential candidates with **industry-specific knowledge**. For instance, you might need to have some knowledge and expertise about healthcare if you want to work in that industry, or you might need military experience if you want to work in defense operations.

In addition, there can be **industry-specific tools** that vary depending on the industry.

AI projects involve working on a team trying to solve real-world problems that impact people's lives. So, it's important to have **workplace skills**, such as communication, teamwork, design thinking, emotional intelligence, and others. These skills might also be referred to as "employability", "soft", or "professional" skills. Regardless of how they're labeled, employers are looking for potential candidates with more than just technical skills. AI professionals need a **strong mix of technical and workplace skills**.

Helpful characteristics

If you're an aspiring AI professional, then it's helpful if you have these general characteristics:

- Be **curious** in your nature. Curiosity is an important driver in understanding the business problem, the data, and what you can do with the data.

- Be **creative**. You will be asked how AI would handle an issue or problem. Creativity can help you consider issues from different perspectives and envision ways to address issues that others might miss.

- Be **flexible** and **adaptable**. When you work on an AI project, you might not obtain the result you expect. To be successful, embrace constant change. You will have to learn from your experience and be willing to make modifications based on your findings, even if it means starting over.

- Be comfortable **communicating**. Communicating with others is vital. Creating solutions or discovering information can be exciting, but you must also be able to help others understand the significance of your solutions and the opportunities they create.

In conclusion, be curious, creative, flexible, and a communicator!

It's important to have knowledge about mathematics, statistics, and various **software tools**, in addition to the **baseline** or **technical skills** that you learned about in this course. Also, it's important to possess the **workplace skills** you learned about, such as communicating, problem solving, critical thinking, collaborating with a team, "learning on the fly", and being curious and flexible.