

9.5: Emerging Roles

As technology evolves, many new roles are becoming more common as other roles fade. For example, as we enter the age of “big data,” we see the need for more data analysts and business-intelligence specialists. Many companies are now hiring social media experts and mobile-technology specialists. The increased use of cloud computing and virtual-machine technologies also is breeding demand for expertise in those areas.

- **Cloud system engineer:** In the past, companies would typically store their data in large physical databases or even hire database firms, but today, they turn to cloud storage as a low-cost and effective means of storing data. This is where cloud engineers come in. They are responsible for the design, planning, management, maintenance, and support of an organization's cloud computing environment.
- **Cyber Security Analyst (or engineer):** As new technologies emerge, so do the number of security threats online. Cybersecurity is a growing field that focuses on protecting organizations from digital attacks and keeping their information and networks safe. The following are examples of some of the many cybersecurity roles:
 - **Security Administrator:** These professionals serve in high-level roles, overseeing the IT security efforts of their organization. They create policies and procedures, identify weak areas of networks, install firewalls, and respond to security breaches.
 - **Security Architect:** Security architects design, plan, and supervise systems that thwart potential computer security threats. They must find the strengths and weaknesses of their organizations' computer systems, often developing new security architectures.
 - **Security Analyst:** Organizations employ a security analyst to protect computer and networking systems from cyber-attacks and hackers and keep information and networks safe.
- **AI/Machine Learning Engineer:** These engineers develop and maintain AI (artificial intelligence) machines and systems that have the ability to learn and utilize existing knowledge. As more and more industries turn towards automating certain aspects of the workforce, AI/Machine learning engineers will be in high demand. With a background in machine learning, you can get a high-paying job as a Machine Learning Engineer, Data Scientist, NLP Scientist, Business Intelligence Developer, or a Human-Centered Machine Learning Designer
- **Computer Vision Engineer:** Computer vision engineers create and use computer vision and machine learning algorithms that acquire, process, and analyze digital images, videos, etc. Their work is closely linked to AR(augmented reality) and VR (virtual reality). As we see the rise of such technologies as self-driving vehicles, these skills' demands will continue to grow.
- **Big Data Engineer:** Big Data Engineers create and manage a company's Big Data infrastructure, such as SQL engines and tools. A big data engineer installs continuous pipelines that run to and from huge pools of filtered information from which data scientists can pull relevant data sets for their analyses.
- **Health Information Technician:** Health information technicians use specialized computer programs and administrative techniques to ensure that patient's electronic health records are complete, accurate, accessible, and secure.
- **Mobile Application developers:** Mobile App developers create software for mobile devices. They write programs inside a mobile development environment using Objective C, C++, or Java programming languages. A mobile app developer will typically choose an OS such as Google's Android or Apple's IOS and develop apps for that environment.

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