Lecture 02

Important roles to pursue in the future

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Data Science: From Newbie to Professional
By MasterCourse

Two Possible Routes

Conventional Routes

- Data Engineer
- Machine Learning (ML) Engineer
- Data Analyst
- Data Scientist
- Research Engineer

  (generally require MSc or PhD)
- Research Scientist
- Academic Researcher

Unconventional Routes

- Freelance Data Science Engineer
- Data Science Trainer or Mentor
- Entrepreneur

Data Engineer

Responsibilities

- Extract raw data from different sources (website, API, databases)
- Identify opportunities for data acquisition
- Analyze and organize raw data
- Design data architectures, build data systems and pipelines
- Scripting and Automation
- Collaborate with ML engineers and data scientists to prepare data for ML modeling.
- Collaborate with data analysts to prepare the data for business analysis
- Ensure and enhance data quality

Machine Learning (ML) Engineer

Responsibilities

- Research, implement and/or integrate ML algorithms and tools
- Design machine learning systems
- Collaborate with Data Engineers to find and build the appropriate datasets
- Training and testing the models in different scenarios so that they are ready for real-world applications
- Build inference apps or APIs according to the requirements
- Deploying the models into different servers

Data Analyst or Business Analyst

Responsibilities

- Provide descriptive, diagnostic, predictive and prescriptive analysis of data using different statistical methods and tools.
- Maintain databases and data storages and verify their quality.
- Collaborate with Data Engineers to get data from different sources and format them in way that's understandable.
- Analyze different trends and patterns.
- Prepare reports for marketing or business team.
- Build documentations of internal data processes which is understandable by laymen, stakeholders and executive teams.

Data Scientist

Responsibilities

- Collaborate with data engineers to identify data sources and collect data.
- Collaborate with data engineers to design the data pipeline and strategies.
- Collaborate with data analysts to discover different trends and patterns.
- Provide solutions to enhance performance in the whole data pipeline - data extraction, transformation, storing, analyzing, predictive modeling, visualizations, etc.
- Collaborate with ML Engineers to access the feasibility of ML models, training and testing them and deploying them.
- Collaborate with marketing or business team in their cost reduction or optimization and effort estimation process.

Research Engineer

{These posts are generally found in different research labs both in the industry and the academia}

Responsibilities

- Find solutions for different research problems
- Design and implement engineering experiments
- Stay up-to-date with trending and useful techniques and tools and integrate them in their infrastructure to enhance and optimize the experiments
- Prepare the summary of different of tests and their findings
- Write research and grant proposals