Quick Answer: How Will Artificial Intelligence and Machine Learning Expand Software Engineering Leaders' Responsibilities?

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Initiatives: Applications and Software Engineering Leaders

SWELs must integrate AI/ML models into applications, and teach and upskill enterprise development teams on how this will change their responsibilities and foster cooperation with the data science teams. SWELs should define the process for integrating the ModelOps workflow with their DevOps workflow.

Quick Answer

How will artificial intelligence (AI) and machine learning (ML) expand developer responsibilities?

As the use of AI and ML models in applications increases, software engineering leaders (SWELs) will need to:

- Ensure that their development team responsibilities are well-defined in relation to the data science teams.
- Enable a portion of their developers to acquire the skills needed to manage elements of the ModelOps pipeline.
- Define developers' responsibilities for the elements of the ModelOps pipeline that overlap with the DevOps pipeline to support changes in application composition.

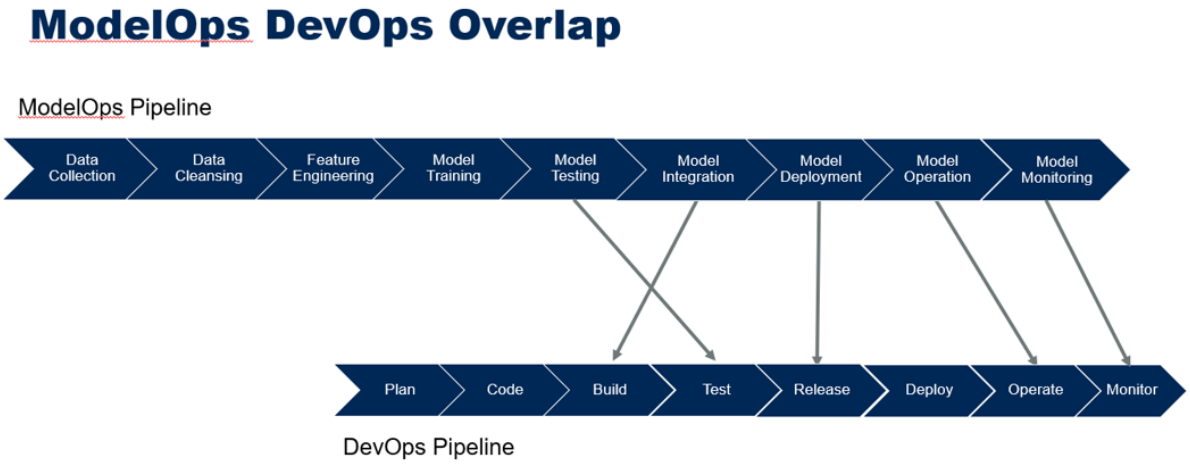
More Detail

The rapid growth of AI and ML model use in the enterprise will continue to put pressure on SWELs to incorporate the capabilities of AI and ML models in enterprise application development. This will be true for enterprises, regardless of the available data science and development assets.

Developers may take on additional elements of the ModelOps pipeline when these data science assets are scarce and may not be available for many AI and ML model creation efforts. In organizations in which data science personnel are generally available, there is the potential for significant overlap and duplication of efforts between data science and development teams, as the use of AI and ML models in applications become commonplace. This will put increasing pressure on SWELs to define processes and development teams that can deliver these models and the capabilities they enable.

SWELs need to facilitate the changing processes that development teams require to support the integration of AI and ML models into applications. Figure 1 shows the overlap and potential duplication of effort between the DevOps and ModelOps pipelines, and the resultant need to define the responsibilities and handoffs between the data science and development teams. Developer and data scientist roles will vary depending on the availability of the resources in the individual enterprise. The different roles may assume varying degrees of responsibility for the elements of the ModelOps and DevOps pipelines. These responsibilities need to be defined and understood. Both data scientists and developers need to have clearly defined responsibilities and handoffs to avoid overlap and duplication of efforts.

Figure1: ModelOps DevOps Overlap



SWELs need to standardize this process, which allows development teams to coordinate ModelOps and DevOps pipelines. This will vary across enterprises, depending on several factors:

- Plans to establish a coordination and communication effort with data science teams to avoid duplication of efforts and overlaps between the ModelOps and DevOps pipelines.
- Development teams' use of off-the-shelf AI or ML models, such as language or vision services or the creation of custom ML models using autoML services, as well as the need to communicate these activities to the data science teams.
- Developers incorporating custom models built by enterprise data science teams, which are needed to define the individual responsibilities between the two teams, with clear roles, responsibilities and handoffs defined.
- Specific attention devoted to model testing, model integration, model deployment, model operation and model monitoring, because these have the highest potential for duplication and overlap.

The rapid growth of AI and ML model use in the enterprise will continue to put pressure on SWELs to incorporate the capabilities of AI and ML models in enterprise application development. This will be true for enterprises regardless of the available data science and development assets. Developers may take on additional elements of the ModelOps pipeline when these data science assets are scarce and may not be available for many AI and ML model creation efforts. In organizations in which data science personnel are generally available, there is potential for significant overlap and duplication of efforts between data science and development teams as the use of AI and ML models in applications become commonplace. This will put increasing pressure on SWELs to define processes and development teams that can deliver these models and the capabilities they enable.

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