

UW HEALTH JOB DESCRIPTION

Machine Learning Engineer III

Job Code: 330097	FLSA Status: Exempt	Mgt. Approval: J. Long	Date: July 2021
Department: Enterprise Analytics		HR Approval: N. Lazaro	Date: July 2021

JOB SUMMARY

The Machine Learning Engineer III sits at the intersection of software engineering and data science. The Machine Learning Engineer III leverages big data tools and software engineering to turn healthcare data into data science solutions that provide actionable insights to improve clinical care. The MLE is responsible for taking data science solutions and scaling them out to production-level models that can handle real-time data with rigorous operating standards in support of healthcare delivery.

The Machine Learning Engineer III works closely with other roles including data scientists, front-line clinicians, stakeholders, informaticists, or researchers, to build or enhance robust systems with embedded artificial intelligence and data science. The Machine Learning Engineer III has a bias towards actionable insights in the name of “getting data science into the system”.

The Machine Learning Engineer III is conscious of advancing the data science maturity of UW Health and defining and showing how data science supports the organization’s overall mission and vision.

The Machine Learning Engineer III is a technical expert executing differentiated, expert solutions in an established problem space. The Machine Learning Engineer III defines the technical work in one or more areas of expertise.

MAJOR RESPONSIBILITIES

Machine Learning Development and Deployment

Design and build software that uses machine learning solutions to improve clinical care, with a focus of deploying actionable, embedded solutions at the point of care or the point of decision making, “get data science into the system”.

Write production-level code consistent with software engineering principles, methodologies, and best practices; includes version control, code reviews, software design, evaluation, and code debugging and troubleshooting.

Process and Standards

Prescribe or define the technical work of others in area(s) of expertise. Contributes to and establishes technical standards

People:

Work on cross-functional teams to design and deploy solutions in production software and systems using agile principles and agile scrum methodologies.

Work closely with IT and shared services teams to advance MLOps, machine learning capabilities, and data architecture.

Hold team-level responsibilities or lead the team in medium & large-scale projects.

Formally teach and mentor IS staff in areas of expertise and machine learning engineering

Give IS department presentations and participate in IS-wide working groups.

Technical Leadership:

Act as department-level expert for specific domains in data science. Review the technical work of others.

ALL DUTIES AND REQUIREMENTS MUST BE PERFORMED CONSISTENT WITH THE UW HEALTH PERFORMANCE STANDARDS.

JOB REQUIREMENTS

Education	Minimum	Bachelor’s Degree in Computer Science, Mathematics, Software Engineering, Computer Engineering, or related field (Four (4) years relevant work experience may be considered in lieu of Bachelor’s Degree)
	Preferred	Master’s or Doctorate degree in Computer Science, Mathematics, Software Engineering, Computer Engineering, or related field
	Minimum	None

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Work Experience	Preferred	<ul style="list-style-type: none"> • 3 years of experience in software engineering including software design, development, testing, release • 3 years of machine learning engineering or data science experience including deploying high-quality machine learning solutions into production • 2 years of experience in healthcare (provider or payer)
Licenses & Certifications	Minimum	None
	Preferred	<ul style="list-style-type: none"> • Epic certifications in Cogito • Epic badge or certification in Cognitive Computing Platform • Agile Scrum Certifications • Azure Certifications • Other related certifications such as Google certification for Machine Learning Engineer
Required Skills, Knowledge, and Abilities		<p>Intermediate proficiency in all three of the following and advanced proficiency in at least one:</p> <p><u>1. Machine learning engineering including ML development and operations. Competency includes:</u></p> <ul style="list-style-type: none"> • Skilled at MLOps including machine learning best practices, design patterns, model management, and machine learning frameworks (like Tensorflow, Keras, or PyTorch) and libraries (like scikit-learn, Theano) • Strong knowledge of machine learning concepts such as learning procedures, bias and variance tradeoff and math, probability, statistics, linear algebra. • Strong knowledge of public cloud technologies, services, and providers, including Microsoft Azure • Skilled at DevOps principles and practices, such as automation and orchestration with CI/CD or IaC, and at using IT frameworks like ITSM <p><u>2. Software engineering with an emphasis in machine learning applications. Competency includes:</u></p> <ul style="list-style-type: none"> • Skilled at writing robust code in Python, R, Java, Scala, C++, including debugging and version control technologies • Strong knowledge of computer science fundamentals (including data structures and algorithms), software and application development methodologies, and software architecture including API web services • Skilled at software testing methodologies such as unit testing, functional testing, integration testing <p><u>3. Data engineering with an emphasis in machine learning applications. Competency includes:</u></p> <ul style="list-style-type: none"> • Skilled at working with “big” data pipelines, including data ingestion, feature engineering, data validation; “big” data includes unstructured and streaming data • Strong knowledge of data structures and data modeling <p><u>Machine Learning Development and Deployment:</u> Outstanding analytical and problem-solving abilities Ability to write, test, deploy, robust code while appropriately leveraging the standard code most used at the organization. Ability to adapt and improve existing code to more suitably solve the current problem.</p> <p><u>Process and Standards</u> Ability to synthesize feedback and go beyond specific suggestions to improve Defines technical specifications and requirements. Proactively identifies risks before work occurs.</p> <p><u>People:</u> Ability to drive cross-functional areas including leaders and stakeholders Ability to work in a team Ability to work in agile, iterative frameworks</p> <p><u>Communication, Mentoring, and Teaching:</u></p> <ul style="list-style-type: none"> • Intermediate proficiency with written and verbal communication skills

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- Intermediate proficiency with mentoring and teaching others on machine learning concepts, techniques, and mindset

Technical Leadership:

Intermediate proficiency at leadership including technical leadership. Competency includes:

- Leads with integrity. Maintains strategic orientation. Demonstrates business and financial acumen. Champions innovation. Manages execution. Leads and develops people.
- Intermediate proficiency with technical leadership: Sound technical judgment including decision-making amidst ambiguity, trade-offs, and constraints. Fluency at multiple levels in the technical stack. Balances long-term technical vision against short-term deliverables. Promotes elegant design and reduces unnecessary technical complexity. Works backwards and drives towards meaningful requirements. Staying current with a solid technical understanding of technology trends.

PHYSICAL REQUIREMENTS

Indicate the appropriate physical requirements of this job in the course of a shift. *Note: reasonable accommodations may be made available for individuals with disabilities to perform the essential functions of this position.*

Physical Demand Level		Occasional Up to 33% of the time	Frequent 34%-66% of the time	Constant 67%-100% of the time
X	Sedentary: Ability to lift up to 10 pounds maximum and occasionally lifting and/or carrying such articles as docket, ledgers and small tools. Although a sedentary job is defined as one, which involves sitting, a certain amount of walking and standing is often necessary in carrying out job duties. Jobs are sedentary if walking and standing are required only occasionally and other sedentary criteria are met.	Up to 10#	Negligible	Negligible
	Light: Ability to lift up to 10 pounds maximum and occasionally lifting and/or carrying such articles as docket, ledgers and small tools. Although a sedentary job is defined as one, which involves sitting, a certain amount of walking and standing is often necessary in carrying out job duties. Jobs are sedentary if walking and standing are required only occasionally and other sedentary criteria are met.	Up to 20#	Up to 10# or requires significant walking or standing, or requires pushing/pulling of arm/leg controls	Negligible or constant push/pull of items of negligible weight
	Medium: Ability to lift up to 50 pounds maximum with frequent lifting/and or carrying objects weighing up to 25 pounds.	20-50#	10-25#	Negligible-10#
	Heavy: Ability to lift up to 100 pounds maximum with frequent lifting and/or carrying objects weighing up to 50 pounds.	50-100#	25-50#	10-20#
	Very Heavy: Ability to lift over 100 pounds with frequent lifting and/or carrying objects weighing over 50 pounds.	Over 100#	Over 50#	Over 20#
List any other physical requirements or bona fide occupational qualifications:				