UW HEALTH JOB DESCRIPTION

Machine Learning Engineer II

Job Code: 330096	**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 II sits at the intersection of software engineering and data science. The Machine Learning Engineer II leverages big data tools and software engineering to turn healthcare data into data science solutions that provide actionable insights to improve clinical care. The Machine Learning Engineer II 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 II works closely with cross-functional roles such as data scientists, IT teams, front-line clinicians, stakeholders, informaticists, or researchers, to build or enhance robust systems with embedded artificial intelligence and data science. The MLE has a bias towards actionable insights in the name of "getting data science into the system".

The Machine Learning Engineer II 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 II is a valued contributor within UW Health IS who plays the critical role in building production-grade data science solutions. The Machine Learning Engineer II executes high-quality solutions in an established problem space and holds team-level and project-level responsibilities.

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 controls, code reviews, software design, evaluation, and code debugging and troubleshooting.

Process and Standards

Responsible for improving team-level processes

People:

Work on a cross-functional team 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.

Informally mentor other staff in machine learning engineering

Technical Leadership:

Hold team-level responsibilities and may lead the team for small & medium scale projects

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 educational requirement)
	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	• 2 years of experience in software engineering including software design, development, testing, release • 2 years of machine learning engineering or data science experience including deploying high-quality machine learning solutions into production • 1 year of experience in healthcare (provider or payer)
Licenses & Certifications	Minimum	None
	Preferred	• Epic certifications in Cogito • Epic badge or certification in Cognitive Computing Platform • Agile Scrum Certifications • ITIL Certifications • Azure Certifications • Other related certifications such as Google certification for Machine Learning Engineer
Required Skills, Knowledge, and Abilities		Intermediate proficiency in all of the following three: <u>1. Machine learning engineering including ML development and operations. Competency includes:</u> • 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 <u>2. Software engineering with an emphasis in machine learning applications. Competency includes:</u> • 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 <u>3. Data engineering with an emphasis in machine learning. Competency includes</u>: • 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 <u>Machine Learning Development and Deployment:</u> Outstanding analytical, critical thinking, and problem-solving abilities Ability to write, test, deploy robust code to build the solution, while appropriately leveraging standard code most used by the organization. <u>Process and Standards</u> Ability to process exploratory feedback and use it constructively Ability to break down a data science solution into constituent tasks or sub-projects <u>People:</u> Ability to engage in cross-functional interactions Ability to work in a team Ability to work in agile, iterative frameworks <u>Communication, Mentoring, and Teaching:</u> • Intermediate written and verbal communication skills

	• Emerging proficiency in mentoring and teaching others on machine learning concepts, techniques, and mindset <u>Technical Leadership:</u> Emerging proficiency in 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. • Emerging proficiency in 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 dockets, 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 dockets, 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:				