AI Engineer

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About the Opportunity

This job description is intended to describe the general nature and level of work being performed by people assigned to this classification. It is not intended to be construed as an exhaustive list of all responsibilities, duties and skills required of personnel so classified.

JOB SUMMARY

The AI Engineer will be responsible for designing, developing, and implementing AI systems and data pipelines that enhance and automate university operations across multiple departments. This role is crucial in transforming manual processes into AI-driven solutions, focusing on building robust data pipelines, creating efficient machine learning models, and integrating AI capabilities into existing systems to improve efficiency, accuracy, and service quality while reducing operational costs. Utilize expertise in machine learning, natural language processing, data engineering, and AI system integration with existing enterprise infrastructure.

This role is hybrid and in the office a minimum of three days a week to facilitate collaboration and teamwork. In-office presence is an essential part of our on-campus culture and allows for engaging directly with staff and students, sharing ideas, and contributing to a dynamic work environment. Being on-site allows for stronger connections, more effective problem-solving, and enhanced team synergy, all of which are key to achieving our collective goals and driving success.

*Applicants must be authorized to work in the United States. The University is unable to work sponsor for this role, now or in the future

MINIMUM QUALIFICATIONS

Knowledge and skills required for this position are normally obtained through a Bachelor's degree in Computer Science, Artificial Intelligence, Machine Learning, or related field; Master's degree preferred and 5 years of experience in AI/ML engineering roles, with at least 2 years working with production AI systems in enterprise environments. Experience with AI system implementation in higher education or similar complex organizational settings preferred. Ability to manage projects, prioritize tasks and deliver on schedule.

Other necessary skills:

- **AI/ML Development Expertise:** Strong proficiency in developing and deploying machine learning models and AI systems in production environments, with deep knowledge of contemporary AI

frameworks, tools, and best practices.

- **Software Engineering:** Excellent software development skills with proficiency in Python, TensorFlow/PyTorch, and experience with containerized deployments and MLOps practices.
- **Data Pipeline Engineering:** Extensive experience with end-to-end data pipelines using tools like Apache Airflow, Prefect, cloud platforms (AWS, Azure, GCP), data warehousing solutions (Snowflake, Redshift), processing frameworks (Spark, Kafka), and container technologies (Docker, Kubernetes), with proficiency in Python, SQL, and version control/CI/CD practices.
- **Machine Learning Engineering:** Demonstrated experience in the full ML lifecycle including data preparation, feature engineering, model training, validation, deployment, and monitoring in production.
- **Natural Language Processing:** Advanced knowledge of NLP techniques and large language models (LLMs), including prompt engineering, context management, and implementation strategies for enterprise applications.
- **Cloud Computing:** Experience deploying and scaling AI systems in cloud environments (AWS, Azure, or GCP), with knowledge of cloud-native AI services.
- **Solution Architecture:** Ability to design scalable, secure, and efficient AI system architectures that meet enterprise requirements and performance standards.
- **System Integration:** Ability to integrate AI solutions with existing enterprise systems, APIs, databases, and authentication services to create cohesive user experiences.
- **Performance Optimization:** Experience optimizing AI models for both accuracy and computational efficiency in resource-constrained environments.
- **Security Awareness:** Knowledge of security best practices for AI systems, including data protection, model security, and prevention of adversarial attacks.
- **Data Science:** Strong understanding of data structures, algorithms, statistical analysis, and data visualization techniques relevant to AI applications.

KEY RESPONSIBILITIES & ACCOUNTABILITIES

AI System Design and Development

Design, develop, and implement AI solutions to automate and enhance university operations, including service desk automation, administrative task processing, and QA testing systems. Create robust, scalable architectures that integrate with existing university systems and accommodate future growth.

Data Pipeline Development and Management

Design and implement end-to-end data pipelines that efficiently collect, process, and prepare data for AI systems. Build robust ETL processes using tools like Apache Airflow, cloud services, and data warehousing solutions to ensure reliable data flow between source systems and AI applications. Implement data quality checks, monitoring, and governance practices throughout the pipeline.

Machine Learning Implementation and Fine-tuning

Develop and fine-tune machine learning models for specific university use cases, including customizing large language models through prompt engineering, transfer learning, and domain adaptation. Create

efficient training pipelines and establish systematic evaluation protocols.

System Integration and Deployment

Integrate AI systems with existing university infrastructure, including identity management, knowledge bases, ticketing systems, and communication platforms. Deploy models to production environments following established MLOPs practices and ensuring appropriate monitoring.

Performance Monitoring and Optimization

Monitor AI system and data pipeline performance, detect and address drift or degradation, optimize resource utilization, and continuously improve model accuracy and efficiency based on real-world usage patterns and feedback.

Position Type

Information Technology

Additional Information

Northeastern University considers factors such as candidate work experience, education and skills when extending an offer.

Northeastern has a comprehensive benefits package for benefit eligible employees. This includes medical, vision, dental, paid time off, tuition assistance, wellness & life, retirement- as well as commuting & transportation. Visit https://hr.northeastern.edu/benefits/ for more information.

All qualified applicants are encouraged to apply and will receive consideration for employment without regard to race, religion, color, national origin, age, sex, sexual orientation, disability status, or any other characteristic protected by applicable law.

Compensation Grade/Pay Type:
113S

Expected Hiring Range:
$112,180.00 - $162,662.50

With the pay range(s) shown above, the starting salary will depend on several factors, which may include your education, experience, location, knowledge and expertise, and skills as well as a pay comparison to similarly-situated employees already in the role. Salary ranges are reviewed regularly and are subject to change.

To apply, visit https://northeastern.wd1.myworkdayjobs.com/en-US/careers/job/Boston-MA-Main-Campus/AI-Engineer_R134531

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