



<b>DATE</b>	JULY 2024
<b>JOB CODE</b>	
<b>FLSA</b>	EXEMPT
<b>EEO</b>	

**JOB TITLE:** Senior Data & AI Architect

**DEPARTMENT/DIVISION:** Information Technology

**REPORTS TO:** Data & AI Manager

**SUMMARY:** As a technical vanguard in mission-critical software development projects, you will spearhead the requirements, design, development, integration, testing, verification, documentation, and maintenance of the City's software and web applications. This role emphasizes elevating the digital experience within our city through exceptional application support, integration, and profound engagement in AI development. You will transcend conventional boundaries by integrating AI and machine learning technologies to innovate, optimize, and lead pivotal initiatives, transforming city services into smarter, more responsive, and efficient systems. Additionally, you will assist in developing and designing database and lakehouse strategies, monitoring system performance, and enhancing database capacity and performance to support our advanced digital ecosystem.

**ESSENTIAL JOB FUNCTIONS:**

- May serve as a lead to lower-level staff, prioritizing and assigning work, training staff on work methods and procedures, and performing other related activities.
- Analyze and optimize detailed business/functional/technical requirements and specifications for applications, coding internally developed applications, and configuring commercial-off-the-shelf (COTS) applications using programming, scripting, and database languages.
- Coordinate application testing, deployment, maintenance, and evolution activities by correcting programming errors, responding to scope changes, and coding application enhancements.
- Keep management informed of application development priorities and activities through periodic verbal and written status reports.
- Gather business requirements from customers and Department management to enhance existing applications and develop new business applications.
- Provide technical leadership in designing and deriving the best solutions based on sound analytical judgment, team input, and the customers' best interest.
- Participate in project management through business meetings, briefings, and document creation, maintenance, and preparation.
- Perform cross training, authoring and overseeing the creation of design documentation that fully define applications and their corresponding support architectures.
- Design and develop software using best practices according to business, functional, and technical design specifications.
- Monitor software development efforts to keep requirements within the agreed scope, cost, and schedule.

- Create and design complex database views, stored procedures, and user-defined functions in SQL Server using best practices for keys, indices, and relationships.
- Perform code reviews for potential performance issues, reusability, and anomalies.
- Install and upgrade database servers and application tools, ensuring compliance with application vendor license agreements.
- Design solutions with network hardware, servers, storage, and software to satisfy needs-analysis and requirements definitions.
- Maintain compliance with external regulatory controls, such as the Texas Department of Information Resources.
- Participate in special projects supporting departmental operations, providing guidance and recommendations to ensure organizational sustainability, efficiency, effectiveness, and performance.
- Spearhead the integration of AI technologies into software solutions, enhancing functionality and user experience, utilizing frameworks, libraries, and platforms such as TensorFlow, PyTorch, scikit-learn, Keras, and cloud-based AI services.
- Lead and mentor a team focused on AI-driven development projects, ensuring the adoption of best practices in AI, machine learning, data preprocessing, feature engineering, model selection, and data analysis.
- Design, develop, and manage AI-enhanced applications, from conceptualization to deployment and maintenance, utilizing advanced programming and scripting languages, and ensuring the scalability of AI/ML models in production environments using technologies like Docker, Kubernetes, and serverless architectures.
- Drive the AI strategy, including natural language processing, predictive analytics, and intelligent automation, to solve complex problems and deliver innovative services, while adhering to AI ethics, fairness, and explainable AI techniques.
- Collaborate with stakeholders, data scientists, data engineers, and domain experts to identify opportunities for AI applications, ensuring solutions align with business needs and city goals.
- Ensure the ethical use of AI, adherence to data privacy laws, implementation of secure AI solutions, and effective communication of AI/ML concepts, results, and implications to both technical and non-technical stakeholders.
- Stay abreast of the latest AI trends, research, and technologies, applying this knowledge to improve city services and operational efficiency, and contributing to the AI knowledge base within the team, fostering a culture of learning and innovation.
- Perform other duties as assigned, which may involve irregular work hours, including evenings and weekends.

**KNOWLEDGE, SKILLS, AND ABILITIES:**

- Strong foundation in AI and machine learning concepts, with practical experience in developing and deploying AI solutions.
- Expertise in programming languages such as Python, R, JavaScript, HTML, C#.Net, and SQL (Relational ~ In Memory~ Vector)
- Experience with AI frameworks and tools (e.g., TensorFlow, PyTorch) and understanding of algorithms, neural networks, and data modeling.

- Knowledge in database design, optimization, and management, with a focus on supporting AI applications.
- Proven ability to lead projects, collaborate across teams, and communicate complex AI concepts to non-technical stakeholders.
- Creative problem-solving skills and a passion for innovation in public service through AI.
- Commitment to continuous learning and staying current with AI advancements and best practices.

#### **MINIMUM QUALIFICATIONS:**

- Six years of related experience.
- CompTIA Security+ certification or equivalent upon management approval within 6 months of employment.
- AZURE Dev Associate or management approved equivalent within 12 months of employment.
- Must qualify for and maintain compliance with Criminal Justice Information Systems access requirements.
- Must possess or be able to obtain and maintain a valid Texas driver's license.

#### **PREFERENCES:**

- Bachelor's degree in in a related field of study or equivalent work experience
- 5-7 years' experience in multi-language programming including but not limited to: Python, R, C++, MATLAB, Julia, Scala, JavaScript, Go
- 7-9 years' experience in various relational databases, mandatory MS SQL/Azure SQL, with knowledge of MongoDB, Cassandra, Redis, HBase, Neo4j, Couchbase, InfluxDB
- 2-4 years' experience with vector databases including, but not limited to: Pinecone, Weaviate, Faiss, Qdrant, Chroma

#### **WORKING CONDITIONS:**

- Frequent reaching, sitting, talking, seeing, hearing, and manual dexterity.
- Occasional climbing, balancing, stooping, kneeling, and crouching
- Sedentary office and outdoors work environments.
- Occasional lifting and carrying up to 50 pounds.
- Work may be performed in a data-center environment, involving loud noise and temperature irregularity.
- Work both indoors and outdoors and are exposed to cold and hot temperatures, constant noise, fume/odor hazards, road hazards, heights, and mechanical and electrical hazards.

#### **CONDITIONS OF EMPLOYMENT:**

- Must pass pre-employment drug test.
- Must pass criminal history check.
- Must pass motor vehicle records check.