Classification Title: Information Technology Specialist II	**Branch/Division/Bureau:** Administration & Licensing Services Branch / Information Technology Division /Application Development & Maintenance Bureau
Working Title: Senior Data AI Engineer	**Office/Unit/Section/Geographic Location:** Enterprise Application and Integration Section/Sacramento
Position Number (13 Digit): 413-105-1414-012	**Conflict of Interest Position:** ☑ **NO** ☐ **YES**
Employee Name:	**Effective Date:**

BASIC FUNCTION:

Under general direction of an Information Technology (IT) Manager I, the IT Specialist II serves as the Senior Data Artificial Intelligence (AI) Engineer for the California Department of Insurance (CDI) Information Technology Division (ITD). This position operates within the Data Engineering, Analytics and Software Engineering domains, and is responsible for the analysis, design, development and implementation of CDI's Snowflake-based data stores, e.g.. data warehouse, data marts, data lakes, cloud data pipelines, data integration, sanitation, conceptual and physical data modeling, Sigma data analytics, data visualization and data security. The incumbent develops and supports CDI's data intensive applications, business intelligence, diagnostic, predictive and prescriptive analytics solutions while providing technical leadership, analysis and design expertise in the development and execution of CDI's enterprise data strategy.

The Senior Data AI Engineer leads the design and development of database solutions and enterprise data architecture across multiple CDI databases, data stores, data lakes, data marts, data warehouses. Responsibilities include analyzing structural requirements for new software and applications through data management, security and governance principles; migrating data from legacy systems; designing conceptual and logical data models; implementing data flows and pipelines; conducting proof- of-concept (POC) activities, testing, troubleshooting, validation and verification; integrating system elements; optimizing data systems and defines data security and data backup procedures. The incumbent integrates AI/Machine Learning (ML) technologies and large language models (LLMs) into data pipelines and applies secure and responsible AI practices.

The Senior Data AI Engineer solves complex business and technical data challenges by leveraging emerging technologies to deliver scalable, high performing, efficient, self-documenting, secure data and information solutions using SQL, Python and/or R, programming languages and new data tools such as Snowflake Coco, Data Bricks, Sigma, PowerBi and AI analytics tools. The incumbent collaborates with business and IT stakeholders to gather and translate business requirements into technical solutions, identifies risks and

mitigation strategies, applying expertise in data modeling, visualization, presentation, storage, transportation and archival.

Occasional travel may be required within and/or outside the state of California via private or public transportation (i.e., automobile, airplane, etc.). Travel may include overnight stay. Extended work hours may occur depending on business demands.

ESSENTIAL FUNCTIONS

30% **Data Engineering**
Analyzes**,** plans, designs, develops, scales, and maintains complex data management solutions, working with hybrid state technical staff and vendors. Designs and implements effective database solutions and models related to CDI data. Rapidly prototypes new ideas and concepts. Examines and identifies database structural necessities by evaluating operations, applications, and programming. Accesses data by implementation procedures to ensure they comply with internal and external regulations. Prepares accurate data warehouse designs, data models and architecture reports for management. Performs and oversees the migration from legacy systems to new solutions. Recommends solutions to improve new and existing database systems. Works with business teams and technical staff to understand business requirements to accommodate data needs for new and existing applications. Leads the design and development of highly scalable and optimized data models and data pipelines. Takes a technical and development leadership role on architecturally significant projects in relation to data. Applies various third-party add-ons. Integrates Snowflake, Sigma, Oracle and Microsoft security and data technology tasks.

20% **Software and Data Systems Maintenance and Production Support**
Leads production software and data platform support by responding to system problems in a timely manner. Solves important technical data-related problems, analyzes production system problems or change requests to determine if system problems or inadequacies exist. Ensures data persistence across various production applications including active participation in investigating and resolving data integrity issues as well as research in root cause analysis processes as needed. Documents findings, meets with customers to discuss recommendations, and obtains approval to make necessary modifications to solve problems. Monitors system performance by performing regular tests, troubleshooting, and integration of new features. Possesses strong understanding of data modeling tools and standards, ETL tools, and big data technologies. Communicates clearly and concisely with technical and business staff.

20% **Data Governance, Master Data Management, Data Pipelines, Data Analytics**
Creates, implements, and maintains data management pipelines and processes to support enterprise data initiatives. Drives technical deliverables across multiple data warehouses, data marts, data lakes, including data acquisition, analytics, modeling, d distribution and reporting. Communicates and collaborates with business and IT stakeholders throughout the entire solution delivery lifecycle to gather requirements, address challenges, and deliver effective data solutions. Provides technical guidance, leadership, and mentoring to promote improved use of structured data management practices and principles. Evaluates and communicates the benefits, risks and trade-offs,

of all architecture and design options and partners with IT and business teams to define, develop, and implement efficient solutions to business challenges and opportunities that address organizational needs and opportunities involving data management or data warehouses.

20% **Data Architecture & Artificial Intelligence/Machine Learning**
Develops data, data analytics and AI/ML architecture. Advises executive level technology and business staff on governance and policy that support CDI business data utilization, optimization and visualization/analytics in collaboration with database, network and security administrators. Designs management components to meet business needs, participates in IT strategic planning in support of CDI business needs, and effectively communicates technical direction and uses latest AI/ML technologies to implement data pipelines and data analytics.

5% **Project Management**
Coordinates CDI project sizing, planning and implementation activities to support successful solution delivery. Facilitates meetings, engages with stakeholders as needed, and prepares and presents project status reports to keep management and customers informed of progress, risks and evolving business and data requirements. Evaluates software and hardware products for feasibility, functionality, and alignment with customer requirements. Collaborates with Infrastructure Services team and other stakeholders to support project implementation and deployment efforts.

MARGINAL FUNCTIONS

5% Researches and evaluates emerging technologies and their application within CDI's computing environment and provides recommendations on their adoption. Analyzes and resolved complex operational and technical day-to-day problems, providing guidance on IT-related issues utilizing established industry standards and best practices. Acts as a technical mentor to junior staff by providing expertise, guidance and leadership to support professional development and successful project outcomes.

WORK ENVIRONMENT OR PHYSICAL ABILITIES

- Ability to work in a high-rise building.
- Ability to transport documents and/or equipment up to 15-20 lbs. (i.e. laptop computers, files, reference manuals, solicitation documents).
- The incumbent may telework in accordance with CDI's Telework Policy. Teleworking employees may be required to report to their headquarters office location on designated telework days. Travel expenses are not reimbursed; however other authorized transit subsidies do exist for those who qualify.

I have read and understand the duties listed above and I can perform these duties with or without reasonable accommodation. (If you believe reasonable accommodation is necessary, discuss your concerns with the hiring supervisor. If unsure of a need for reasonable accommodation, inform the hiring supervisor, who will discuss your concerns with the Health & Safety Analyst.)

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Employee Signature Date

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Printed Name

I have discussed the duties of this position with and have provided a copy of this duty statement to the employee named above.

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Supervisor Signature Date

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Printed Name