Ontario

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Job Specification

Position Title: Lead Data Scientist
Job Code: 7A008 - ProgPlanEval07
Job ID: 103511

Purpose :

To provide Ministry wide leadership and expertise in the field of health Data Science Analytics in order to improve productivity at the system level in accordance with OPS principles and objectives.

To provide strategic expertise, leadership and coordination for planning, development, implementation and delivery of, advice, support and education related to health data science analytics, products and tools to support health system planning and decision making.

Key Responsibilities :

1. Analysis
- Development of data science analytic approaches such as machine learning, deep learning, and natural language programming.
- Support the development and delivery of ministry-specific analytics to support evidence-based decision-making and produce actionable insights.
- Design methods to capture, structure, transform, and process data to be used to generate models.
- Build data models that provide information which is accurate, easy to understand, and unbiased.
- Identify and act upon opportunities for continuous improvement.

2. Data and Information Management
- Lead the development of compelling visual analytic graphics showing results in a variety of ways to ensure important insights are discovered.
- Develop interactive dashboards and graphics allowing the end-user to immerse themselves in the data and discover insights independently.
- Take on a leadership role and advise on how to build this capacity amongst colleagues, depending on organizational need.
- Lead the development of the ministry's data science strategy through extensive consultation across the OPS and with thought leaders and best-in- class organizations.
- Foster innovation through regular information-seeking (e.g., gathering and analyzing information on best practices).
- Recommend new data sources and ongoing improvements to methods and algorithms that lead to new findings.

3. Build capacity
- Develop compelling visual analytic graphics showing results in a variety of ways to ensure important insights are discovered.
- Develop interactive dashboards and graphics allowing the end-user to immerse themselves in the data and discover insights independently.

4. Consultation and Advice
- Provide interpretation, advice, and expertise to client groups and other stakeholders, including direction on how to transform analytics into actionable information and proactive insights that support decision making.
- Acts as primary ministry access point and work closely with client groups to assess current data analytics and reporting capabilities, gather future-state requirements, and identify further opportunities for improvement.
- Make strategic recommendations on data collection, integration, and retention requirements incorporating business requirements and knowledge of best practices.
- Work closely with clients, data stewards, analysts, managers, and others to turn data into critical information and knowledge that can be used to make sound organizational decisions.
- Advise on how to build a strong programming skills in the areas of big data (e.g., Hadoop MapReduce), statistical modelling (e.g., SAS or R), and visual analytics (e.g., Tableau, SAS visual analytics, Python) in a large capacity amongst colleagues, depending on organizational need

5. Strategic Leadership
- Lead and participate in special projects and represents the Ministry on internal/external advisory groups, working groups, task forces and committees to provide advice/information, data needs and data collection recommendations and/or support the implementation of best practices, policies and processes for the development/delivery of data, tools and reporting products.
- Provides strategic and operational leadership for planning, development and delivery of the ministry's data

science analytic program. Influences creation of new program initiatives by recommending priorities and approvals of targeted to this programs and strategies.
- Builds project teams of experts to work together on data analysis programs, visual analytics and oversees all areas of project management including:
planning of resources, assigning project tasks, monitoring progress and reviewing quality of work.
- Provides team leadership, direction and guidance to staff in the section, including assigning responsibilities, providing oversight, ensuring quality of work and resolving service issues.

6. Issues Management
- Leads the identification, monitoring, analysis and assessment of issues, trends, and directions in data science management which affect the development of health policies and plans. Develops strategies and policy options for response by senior management.
- Prepares briefing notes, letters, speeches, presentations, and position papers for senior management and in response to correspondence for the
Minister's Deputy Minister's and senior officials' signature.
- Works with partner OPS ministries and other provincial and/or federal jurisdictions to facilitate development of consistent approach in data science programs in Ontario/Canada.

Knowledge / Skill :

Knowledge of and skills in:
- Theories, concepts, methods and measures of health economics, epidemiology, health human resources, health service utilization, population health,
- Health surveys and health status indicators to advise clients, analyze data, and produce information products.
- Range of analytical methods, techniques, and tools such as, but not limited to: statistical analysis and modelling, data mining, machine learning, deep learning, and algorithms, natural language processing, artificial intelligence and other related disciplines at the specified experience level.
- Large, unrelated, unstructured data sources such as sensor data, internet of things, genomics.
- Synthesizing facts, theories, trends, inferences, and key issues and/or themes in complex and variable situations.
- Recognizing abstract patterns and relationships between apparently unrelated entities or situations.
- Analyzing data in source systems to identify data cleanliness issues (e.g., missing values, duplicate meanings, and invalid data).
- Research and analytical skills to lead program/policy reviews and developments. Initiative, decisiveness and issues analysis/resolution skills to anticipate, identify and deal effectively with emerging relevant issues.
- Generating research models and reports (scheduled and ad-hoc).
- Designing high-quality interfaces to present information in a meaningful way to end users.
- Broad understanding of data management, financial and business analysis, database architecture, and information visualization.
- Sophisticated methods such as deep learning change the way in which the organization tackles complex analytical problems.
- Programming skills in the areas of big data (e.g., Hadoop MapReduce), statistical modelling (e.g., SAS or R), and visual analytics (e.g., Tableau, SAS
visual analytics, Python).
- Use of Hadoop-based data mining frameworks and able to impart this knowledge on colleagues.
- Relevant software packages, programming, statistics, and modelling and provide technical leadership to colleagues and internal/external clients.
- Relevant health information issues and current events related to the unit's mandate and vision to anticipate serving future client needs and support health planning and policy.
- Investigation, risk assessment and risk management principles to research, identify, plan for, and mitigate risks.
- Knowledge and experience in mathematics and statistics.
- Government/ministry legislative authorities, regulations, policies and guidelines; Ministry programs/services and policy development processes;
standards and legislation (FIPPA, PHIPPA) related to access and release of health information and data.
- Computer proficiency to access resources on unit's databases to conduct research, analyses and use applications to retrieve and manipulate data from databases located on different platforms.
- Written and oral communication techniques to prepare and present reports, including briefing notes, business cases, project plans, technical and non- technical and status reports, planning documents, and operational policies; and to provide explanations on data issues and complex data analyses.
- Policy/legislative processes and policy and research tools, program design and evaluation techniques to provide project leadership and expertise in support of the development, evaluation, and communication of strategic policies, programs, regulations and legislation.
- Issues and relationships of health system stakeholder groups and populations to ensure effective relationships are developed.
- Government/ ministry directions and priorities, division mandate, and ministry stewardship principles and objectives to ensure compliance and alignment.
- Health care system trends, models of delivery, funding, governance and legislation and understanding of issues and concerns faced by health stakeholders to ensure activities consider a range of issues within the health system.
- Project management skills to provide project planning and leadership on concurrent projects, work collaboratively with team members and to manage deadlines and competing priorities.
- Oral and written communications to prepare and present scenarios and reports, planning frameworks, speeches, presentations and briefing papers, and to develop documents synthesizing a variety of ideas, views and issues.
- Computer skills to access the internet as a research too and to prepare own material in software programs and applications for the analysis of data, database management software and the Internet to develop communication vehicles.
- Software applications for the analysis of data, database management software and the Internet to develop

communication vehicles.

Interpersonal / Influencing Skill :

- Consultation, relationship management, and negotiating skills to gain support for the initiatives undertaken by the Lead Data Scientist and Executive
Director, Information Management, Data, and Analytics (IMDA).
- Consensus-building and networking skills to maintain strong relationships with partner branches, other ministries, and internal and external stakeholders; develop support for key initiatives; and ensure that the initiatives reflect the coordinated input from all key players.
- Team building and leadership skills to provide technical direction, leadership and guidance to a small staff team in the Forensic Mental Health section, and to lead external contractors on a project basis.
- Consultation and facilitation skills to achieve consensus on policy issues and influence discussions with stakeholders.
- Influential to support multi-stakeholder projects where position has no direct administrative authority, to produce desired deliverables on time and within budget for a wide range of policy, research, and other projects with enterprise-wide implications.
- Negotiation, conflict management, and consensus-building skills to resolve contentious issues, maximize team contributions, and produce required deliverables.
- Advisory skills to act as an expert corporate resource on evidence-based decision making, performance measurement, program evaluation, accountability, government effectiveness and efficiency, and results-based management.
- Collaborate with other members of formal and informal groups in the pursuit of common missions, vision, values, and mutual goals.
- Draw on the strengths of colleagues and gives credit to others' contributions and achievements.
- Communication, consultation and mediation skills to elicit cooperation from and share project data/information with stakeholders, client management, program staff, personnel from other jurisdictions, researchers and academia, and consultants on project management processes, and administrative project management methods; and to convince stakeholders to accept an alternative response to an issue and to arrive at a provincial consensus.
- Interpersonal and presentation skills to develop and maintain effective relationships with clients, stakeholders and colleagues and to participate in an advisory capacity on committees or working groups.

Analyzing / Problem Solving Skill :

- Strategic thinking to develop long term objectives, strategies and goals and to think in future oriented terms.
- System thinking to perceive and understand the ministry and the health care system, isolating one or several parts of a system or viewing the system in order to analyze impacts of actions or events.
- Analyzing large, complex, multi-dimensional datasets with a variety of tools.
- Manipulate and analyze complex, high-volume data from structured and unstructured sources.
- Creative thinking and propose innovative ways to look at problems by using data mining (the process of discovering new patterns from large datasets)
approaches on the set of information available.
- Assess both qualitative and quantitative information to evaluate the implications and impact of proposed policy changes.
- Process and distills information from a range of sources, including research and scientific data, trends analyses, independent research, and other sources to identify issues and discern salient points.
- Proficient in statistical analysis, quantitative analytics, forecasting/predictive analytics, and multivariate testing.
- Accomplished in the use of statistical analysis environments such as R, MATLAB, SPSS, or SAS.
- Strong programming skills in the areas of big data (e.g., Hadoop MapReduce), statistical modelling (e.g., SAS or R), and visual analytics (e.g., Tableau, SAS visual analytics, Python).
- Proficient with desktop analysis software including Microsoft Excel, Access, VBA.
- Analyze information on service delivery models in other jurisdictions and determine their feasibility and cost benefits for Ontario.

Decision Making / Responsibility :

Responsible for:
- Providing leadership and expertise for the design, development, implementation, evaluation and continuous improvement of data science program standards for population health system programs and services.
- Identifying and advising on existing and potential strategic issues.
- Determining research and analytical techniques, the extent of stakeholder consultation required during research, and the effective use of project resources.
- Providing technical direction, guidance and leadership to staff team in the Section, and providing technical leadership to external contractors on a project basis.
- Working with Executive Director and Associate Deputy Minister to assess advanced analytics capabilities of Division. Making recommendations on how to ensure gaps are filled through strategic hiring.
- Advising the HR sub-committee of the senior leadership team on how the organization can best address building skills and competencies in advanced analytics and data science.
- Decision making which are guided by provincial and ministry strategic directions, the existing legislative/regulatory and policy framework, and government directives and procedures.

Contacts / Stakeholder :

- Works with staff and managers across IMDA, as well as other stakeholders inside and outside of the MOHLTC.
- Director, ADM and senior ministry officials to provide specialized expertise and act as the ministry's expert resource in the field of data science management; with branch/division/ministry colleagues to provide project leadership and advice on issues analysis.

- Stakeholders to exchange information on issues lead or participate in work groups or forums.
- Other jurisdictions to lead/participate in consultations, exchange information/advice.

Guidance / Supervision :

- Will report directly to the Executive Director, IMDA.
- Provides technical guidance, leadership, and project leadership to staff managed by other positions.

Demands / Pressures :

Work Demands :

- Required to respond to requests within short deadlines and with shifting/continual reassessment of government/ministry priorities.
- Demands associated with policy development initiatives may be determined by the government's legislative agenda, limiting control of the pace of work.
- Constantly required to deal with competing work priorities.

Mental / Sensory :

- Frequent requirement to concentrate when conducting research, drafting reports, and conducting due diligence of materials to ensure the accuracy and reliability of information, in addition to ensuring that the final product is compatible with government/ministry strategic directions and objectives.
- Frequent requirement to listen intently when chairing/participating in meetings and client consultation sessions.

Conditions / Environment :

- Work is performed in a typical office environment.