



General Information

Job Title: Dredging Data Scientist

Department: Dredging Business Unit

Department Building Block: Dredging Estimation

Reporting and interaction lines

Functionally reports to

- Dredging Estimation Manager

Operationally reports to

- Senior Dredging Production Engineer

Supervises

- N/A

Job Category

- Basic Professional Engineer / Senior Support Staff

Expected relationships with other department(s) / division

- Projects Department
- Technical Department
- Purchasing Department
- HSE department
- Survey department
- Engineering Department
- Commercial Department

Description of key result areas of department

- Focus on strong statistics analytical and problem-solving skills and statistical programming knowledge, to be able to quickly cycle hypothesis through the discovery phase of the company tendering and projects.
- To implement approved corporate Artificial Intelligence and Analytics strategy with an aim to develop actionable insights that continuously optimize business decisions.
- Provide accurate cost calculations for tendering and projects.
- Production and cost improvement for projects in execution.
- Implement models by transforming/optimizing for project performance.

Job Description: Description of activities and key responsibilities of the function

Key Accountabilities:

- A Dredging Data Scientist analyses all dredging related data generated during dredging projects with the help of databases, programming and visual dashboards.
- The scientist collects and stores data, checks completeness and accuracy, implements analyses while ensuring statistical quality and generates reports for the management.
- Advanced analytics use cases successfully deployed code and deploying them into production
- Support in the development of analytics standards and protocols to ensure scalability and support self-service advanced analytics.
- Research and stay up to date on latest data science and analytics approaches and practices in the market ensuring that, when relevant, these are appropriately leveraged within Data and Analytics function.
- Implemented standards and protocols as per prescribed project requirement.

Responsibilities and duties:

- Apply advanced statistical and predictive modelling techniques to build, maintain, and improve on multiple decision systems, Designs experiments, and test business hypotheses.
- Identify what data is available and relevant in the company for analytics opportunities, including internal and external data sources, leveraging new data collection processes such as geo-location data, Unstructured data sources such emails, log files, social media etc.
- Mine and analyse data from company databases to drive optimization and improvement in dredging process development, project enhancement and contract budget estimation.
- Develop innovative and effective approaches to solve business problems using analytics and communicate results and methodologies.
- Utilize patterns and variations from existing dredging database and provide predictive analysis outputs.
- Provide on-going tracking and monitoring of performance of decision systems and statistical models built by the data science unit.



- Recommend & Implement ongoing improvements to methods and algorithms that lead to findings, including new information & patterns in the data.
- Establish conducive ecosystem for analytics using tools, processes, contracts etc. within the company that will enable adoption of analytics across the organization.
- Play the role of company wide machine learning and Artificial Intelligence expert to use these techniques to solve the real dredging project problems.

Professional Skill Requirements

- Experience in “design and prototype” part of the ML development pipeline, beginning with pulling datasets from SQL and ending with serializing ML models and assisting production engineers to productionize model retraining and model serving systems.
- Practical experience of running impactful inferential analyses and data investigations to identify recurring patterns, root causes, and propose actionable product solutions.
- Must know to design approaches to validate findings or test hypotheses, interpret experiments to measure the impact of new features.
- Collect and store dredging related data in a database and check periodically their completeness and accuracy through an effective communication with project teams.
- Using of AI and building machine-learning algorithms to achieve specific goals, develop efficient routines and methods for the project related tasks.

Experience:

- Experience using statistical computer languages (R, Python, SLQ, etc.) to manipulate data and draw insights from large data sets.
- Experience working with and creating data architectures.
- Knowledge of a variety of machine learning techniques (clustering, decision tree learning, artificial neural networks, etc.) and their real-world advantages/drawbacks.
- Knowledge of advanced statistical techniques and concepts (regression, properties of distributions, statistical tests and proper usage, etc.) and experience with applications.
- Knowledge and experience in statistical and data mining techniques: GLM/Regression, Random Forest, Boosting, Trees, text mining, social network analysis, etc.
- Experience querying databases and using statistical computer languages: R, Python, SLQ, etc.
- Experience using web services: Redshift, S3, Spark, Digital Ocean, etc.
- Experience creating and using advanced machine learning algorithms and statistics: regression, simulation, scenario analysis, modelling, clustering, decision trees, neural networks, etc.

Educational Qualifications & Certifications

- Master’s degree in Computer Sciences, Information Technology, Computer Engineering, or any related disciplines.
- Additional degree or certification in the field related to the data science/Analytics is preferred.

Behavioral skills

- Creative skills to be used in data visualizing and reporting
- Strong analytical and organisational mind-set
- Good social and communication skills to communicate both with managers and the project teams
- Flexibility and adaptability
- Eager to learn and use new tools and software
- Must have excellent organizational, multi-tasking, and time-management skills.

HSE Behavioural Skills

- Adhere to NMDC HSE Policy
- Follow the HSE Management System procedures and safe working instructions

Relevant experience

- Minimum 3+ years extensive experience in managing a large Analytics or AI function.
- ML/DL solutions focused on batch and real-time data pipelines.
- Experience with probability and statistics inclusive of machine learning, optimization, forecasting and experimental design.
- Experience in benchmarking and model performance evaluation and improvement.



JOB DESCRIPTION

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Other

Role Specific Competencies:

Excellent Verbal & Written communication skills

- Required: Fluent in English speaking and writing

IT skills

- Proficient and experienced in scripting languages and have rapid prototyping skills, that is, fluency in SQL, Python, Spark, Filemaker, others.
- Experience on the Azure Cloud platform: including Azure Databricks, Azure ML and etc.
- Experience working with Developer tools such as Azure DevOps, PyCharm/MS Visual Studio, Docker etc.
- PowerBI or a similar data visualization software

Review / Approval / Acknowledgement

Department Review

Chief / Director / Manager Name:	Tom Coppens	Signature:		Date:	
Chief / Director / Manager Name:	Koen Van De putte	Signature:		Date:	

HR Approval

HR Director / Manager Name:	Rita Abi Saab	Signature:		Date:	
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Employee Acknowledgement

Employee Name & File No.:		Signature:		Date:	
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