

Paulo Andre Andrade Martins

Work rights: Permanent Resident - Global Talent Visa

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Experienced project leader with a solid foundation in Mining Engineering, Lean Six Sigma and Advanced Analytics. Passionate about leveraging data and technology to fuel continuous improvement and optimisation. Over the last 12 years, I have led improvement initiatives across multiple areas of the mining value chain with significant contributions to productivity, safety and operational efficiency. Currently, I'm focusing on embedding cutting-edge technologies and innovative methods to transform the improvement lifecycle—from data-driven insights to solution implementation.

PROFESSIONAL EXPERIENCE

Nov/21 to date Rio Tinto

Australia

System Insights and Improvement / Forecasting (from Aug 2024)



Specialist Mining Productivity – Pit-to-Port Forecast

The Forecasting team within the Integrated Scheduling & Planning division is responsible for the short and medium-term production plans. The team's key activities include asset capacity benchmarking, performance reconciliation, integration of improvement initiatives, maintenance plans, ore volumes and grades across the Rio Tinto Iron Ore (RTIO) value chain.

Responsibilities and achievements:

- Appointed RioExpert in the Data Science and Optimisation discipline.
- Leading the conceptualisation and development of GenAI use cases for performance insights and knowledge management in the Integrated and Scheduling Planning division.
- Led a team of technical specialists and advisors supporting the development and implementation of Live Parameters, an advanced integrated planning and forecasting digital platform to support the pit-to-port production planning and reconciliation process across all RTIO operations – Part of the E2E Digital Transformation Programme.
- Conducted value chain productivity assessments, applying system thinking and analytical tools such as the Theory of Constraints and Value Driver Trees to identify and evaluate opportunities to uplift SOP production. Successfully completed performance assessments supporting the implementation of Safe Production System (SPS) practices and Systems Playbook for three mine sites in 2023/2024, realizing an estimated benefit of 2Mt in SOP production with a projected potential for an additional 6Mt annually.
- Supported the transformation of the quarterly production forecast parameter input process by integrating new analytical tools into business workflows, enabling faster production forecasting iterations and reducing the time required to establish the performance baselines by 50%.
- Led a team of data analysts and SME advisors in the development and implementation of analytics solutions to automate and reduce the TTI - Time to Insight, enabling asset performance diagnostics for productivity and maintenance improvements.
- Implemented over 20 analytics products (Power BI dashboards, reports and apps) utilised across multiple divisions to improve maintenance tactics, productivity assessment and planning.

2016 – 2021

CMOC International: Phosphates and Niobium Operations

Brazil



Mine Planning Engineer / Mine Planning Coordinator (2019-2021)

The mine planning team is responsible for short and medium-term production and capital plans, pit-to-plant reconciliation and technical support for strategic projects. While leading the team, I was also responsible for redesigning the reporting structure and technical reviews of LOM and major projects.

Responsibilities and achievements:

- Coordinated a cross-functional team of mine planners, supervisors, and surveyors responsible for short- to medium-term mine planning activities, covering weekly to five-year horizons.
- Led the conceptualisation and delivery of a monthly Performance Report, reconciling pit-to-plant strategic KPIs to provide comprehensive insights and improvement opportunities.

- Conducted technical assessments and reviews for Life of Mine planning, including long- and medium-term projects such as waste dump location and design, fleet sizing and land acquisition.
- Developed the technical and economic evaluation for insourcing the mining operations in the Chapadão and Boa Vista mines, considering operational and production targets, fleet sizing, labour, OPEX and CAPEX, representing an approximately \$700m CAPEX investment.
- Represented the mining department in the multidisciplinary team that assessed the portfolio of strategic projects that supported the expansion of CMOC operations in Brazil.



Continuous Improvement Engineer (2016-2018)

After the acquisition of the Anglo American Phosphates and Niobium operations by the CMOC group in 2016, I was designated to support the senior leadership in implementing an Operations Synergy programme. In parallel, I continued to prospect and manage multiple Lean Six Sigma and Advanced Analytics initiatives.

Responsibilities and achievements:

- Led the conceptualisation and development of an AI-based functionality to optimise the truck-shovel dynamic allocation in the Fleet Management System, reducing costs and enhancing productivity with an NPV of \$8.5m—project winner of the company's innovation award in 2018.
- Performed the role of data/analytics translator, working with startups and experts in developing Machine Learning models to predict plant production and metal recovery.
- Performed the PMO role by monitoring and reporting to the CEO and Executive Committee on monthly meetings on the impact of cost reduction initiatives, such as operations synergy, free cash flow and cost optimisation, representing about \$10.2m of savings in two years.
- Led the implementation of Business Intelligence tools through the implementation of the Power BI software in the mine, geology, business improvement, and S&OP areas.
- Developed and coached multiple Lean Six Sigma projects, specializing in asset and system capacity analysis, statistical process control, Kaizen and daily work routine management.

2011 - 2016	Anglo American: Nickel, Niobium and Phosphates BUs	Brazil
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Mining Engineer - Senior Mine Engineer (from 2014)

I started my career in a fast-track development programme focused on technical and leadership development, leading teams through the development and implementation of critical mining systems and improvement projects, from rock fragmentation to fleet and mineral processing productivity.

Responsibilities and achievements:

- Assessed the technical and economic viability of a Fleet Management System acquisition, presented the business case to the senior leadership showing an IRR of 130% in 5 years, and led the system's implementation.
- Successfully conducted the feasibility studies for a \$1.5b expansion project (Goias II), assessing various trade-offs such as insourcing the mine fleet, optimal fleet size and engineering and integration alternatives to double the production capacity of the Phosphate and Niobium plants.
- Developed a blasting optimisation project that reduced rock fragmentation and costs by 20% and 17% respectively - winner of the 19th Award of Excellence in the Mineral Industry in [2017*](#).
- Led the conceptualisation, development and implementation of a Production Management System with a focus on pit-to-plant production and stockpile conformance – published in a mining Journal in [2016*](#).
- Developed a Lean Six Sigma project that increased fleet productivity by 14% and reduced crushing maintenance costs by 24% - winner of the 18th Award of Excellence in the Mineral Industry in [2016*](#).
- Winner of Anglo American Applaud Program in 2015 (Brazilian edition) – Kaizen category, with the project: Granulometric Reduction of Crushed Ore.
- Developed and presented the project: Fragmentation Optimization - Adopting Mine to Mill for Reducing Costs and Increasing Productivity – Presented during the 11th International Symposium on Rock Fragmentation in Sydney, 2015.

* Links provided may not be accessible in the corporate office network. Magazine articles are in Portuguese.

EDUCATION				
	2018 – 2020	Pontificia Universidade Católica de Minas Gerais Graduate Diploma in Data Science and Big Data	Brazil	
	2013 – 2015	Universidade Federal de Goiás Graduate Diploma Mineral Processing	Brazil	
	2006 – 2011	Universidade Federal de Pernambuco Bachelor's Degree in Mining Engineering	Brazil	
OTHER QUALIFICATIONS				
Data Science, AI and Analytics courses and qualifications:				
<ul style="list-style-type: none">• AI Product Manager Professional Certificate – IBM (in progress)• Generative AI for Business Intelligence (BI) Analysts Specialization – IBM• +10 Generative AI courses, including Prompt Engineering Specialization, Generative AI Assistants Specialization and Generative AI Leadership & Strategy Specialization from Vanderbilt University• + 6 courses in Data Science and Data Engineering from Microsoft, Core Innovation Hub and DeepLearning.AI• +5 courses in Python programming from IBM and Data Science Academy				
Business, consulting and project management-related courses and qualifications:				
<ul style="list-style-type: none">• Black Belt in Thinking – BBIT – Wisetech Academy (in progress)• Theory of Constraints Fundamentals certification – TOCICO• Black Belt and Green Belt – Lean Six Sigma Certifications - Setec Consulting Group• 03 Business Consulting Skills courses from Rio Tinto PACE, High Bridge Academy and Hays• Scrum Master Certification – Scrum.org• Enterprise Design Thinking Practitioner – IBM• The Achiever Program–Gordon Institute of Business Science/Univ. of Pretoria (South Africa)				
Mining Engineering courses and qualifications:				
<ul style="list-style-type: none">• Courses and practical experience with mine planning software: Alastri Tactical Scheduler, Deswik, Studio OP Open Pit Design & Scheduling and Surpac.• Mining Road Project and Construction Course – University of Pretoria/UFRGS• Leveraging Fragmentation for Productivity in Mineral Processing– JKMRC				
PUBLISHED WORK				
<ul style="list-style-type: none">• Book: Advanced Analytics in Mining Engineering (Author of 1 chapter) – Springer, 2021.• Book: Data Analytics Applied to the Mining Industry (Author of 5 chapters) – CRC Press/ Taylor & Francis Group, 2020.• Post-graduation final paper: Application of Control Charts for Productivity Analysis in a Fleet Management System, 2019.• Paper: Blasting Optimization in a Phosphate Rock Mine in Brazil – 25th International Mining Congress and Exhibition of Turkey - Antalya, 2017.• Paper: Fragmentation Optimization – Adopting Mine to Mill for Reducing Costs and Increasing Productivity – 11th International Symposium on Rock Fragmentation by Blasting - Sydney, 2015.				
MEMBERSHIPS AND ASSOCIATIONS				
<ul style="list-style-type: none">• Member of the Rio Tinto Digital Influencers group.• Founding member of the AI for Business Leaders community• Member of the Theory of Constraints International Certification Organization -TOCICO• Member of the Data Management Association - DAMA• Member of the International Business Communication Standards - IBCS				
LANGUAGES		Portuguese (Native)	English (Fluent)	Spanish (Professional)

