

ALI SOOFASTAEI

PhD | MEng | BEng | MIEAust | PMP

GLOBAL DATA, AI & MINING TECHNOLOGY EXECUTIVE

Enterprise Transformation | Operational Analytics | Mine-to-Mill Optimisation

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EXECUTIVE PROFILE

Global data, artificial intelligence and digital-transformation executive with more than 20 years of experience across mining, energy and industrial R&D. Led enterprise analytics portfolios at Newmont and Vale, built multidisciplinary global teams and established governance, delivery and value-realization systems for complex operational programs.

Combines engineering, systems thinking and applied data science to convert fragmented operational data into trusted decisions, scalable digital products and measurable business outcomes. Domain depth spans mine-to-mill and pit-to-port optimisation, mobile-equipment performance, predictive maintenance, comminution, supply-chain intelligence, energy efficiency, sustainability analytics and enterprise data governance.

Board- and C-suite-facing leader, author and international speaker with a record of aligning technical specialists, operating teams, research partners and technology providers around practical transformation roadmaps.

Executive impact at a glance

20+ years across mining, energy and industrial technology	>\$80M annual audited benefits reported across Vale analytics programs	\$15M enterprise analytics portfolio budget managed at Newmont
15 completed applied research programs represented in the portfolio	13 + 1 published book titles plus one forthcoming CRC Press title	85+ international presentations across five continents

Core expertise

Enterprise Data & AI Strategy • Analytics Centres of Excellence • Data Governance & Architecture • AI/ML and Predictive Analytics • Digital Product Leadership • Mining Operational Excellence • Mine-to-Mill and Pit-to-Port Optimisation • Asset Reliability • Energy and Fuel Efficiency • Portfolio and Program Leadership • Benefits Realization • Executive Stakeholder Engagement

Selected career highlights

- Vale:** built and led a global advanced-analytics program and Centre of Excellence, managing a \$10M–\$15M portfolio and programs reporting more than \$80M in audited annual benefits across supply chain, asset health and compliance.
- Newmont:** directed a \$15M enterprise analytics portfolio and advanced Value Driver Tree and Global Plant Analytics initiatives with more than \$10M in projected business value.
- Operational transformation:** designed governance, delivery, change and benefit-tracking mechanisms that moved analytics from isolated proofs of concept into operational decision workflows.
- Applied research:** developed a portfolio spanning haulage energy, mine-to-mill optimisation, predictive maintenance, logistics, mineral prospectivity, market intelligence and sustainability analytics.
- Thought leadership:** authored or edited 13 published book titles, with one further CRC Press title forthcoming, and delivered more than 85 international conference and industry presentations.

PROFESSIONAL EXPERIENCE

ContinuumOps Pty Ltd | Executive Director & Co-Founder

Product-led mining technology venture | Brisbane, Australia

Jan 2026 – Present

- **Co-founded and led a mining technology company** developing integrated diagnostic and decision-intelligence products for mine-to-mill and pit-to-port performance.
- **Set product and corporate strategy** across customer discovery, technical governance, strategic partnerships, commercial positioning and go-to-market development.
- **Designed the product architecture** to combine operational context, physics-based understanding, advanced analytics, governed data and human-in-the-loop recommendations.
- **Built a multidisciplinary delivery model** linking mining, metallurgy, operations, data science, software engineering and business development capabilities.
- **Led the development and commercialization** of a product portfolio covering operational performance diagnostics, contextual decision intelligence and integrated optimization.
- **Established product roadmaps, development priorities** and validation frameworks aligned with customer problems, operational constraints and measurable business value.
- **Directed customer discovery and solution-design engagements** with mining organizations across Australia, North America and South America.
- **Developed practical use cases spanning** haulage, mine-to-mill optimization, materials handling, asset performance, energy efficiency, port logistics and operational scheduling.

Cascadia Scientific | Performance Assurance Manager

High-accuracy fuel measurement and mining fleet analytics | Australia

Jan 2026 – Present

- **Lead performance assurance** for high-accuracy fuel-measurement and analytics deployments across heavy mining equipment, from installation readiness through operational value verification.
- **Established data-quality controls** for sensor calibration, time alignment, completeness, anomaly detection and reconciliation across fuel-flow, OEM, fleet-management and refueling records.
- **Translate measurements into action** through fuel-performance baselines, operator coaching, route and road insights, maintenance diagnostics and benefits-assurance reporting.
- **Coordinate technical delivery** across site teams, client stakeholders, field engineers, analysts and software specialists in multi-site mining environments.
- **Develop automated quality-assurance** routines to detect data gaps, duplicate records, timestamp errors, signal drift, flatlining, communication failures and physically implausible values.
- **Reconcile measured fuel consumption** and refueling events across equipment, shifts and reporting systems to identify discrepancies and quantify data confidence.
- **Define fleet-performance metrics** covering fuel burn, payload efficiency, idle consumption, cycle performance, utilisation, productivity and cost per ton.

Newmont Corporation | Advanced Analytics Programs Leader

Enterprise Data & Analytics | Global portfolio

Jul 2023 – Dec 2025

- **Directed a \$15M portfolio** and a global team of BI analysts, data scientists and data engineers, aligning investment with operational priorities and measurable value.
- **Repositioned the operating model** toward customer-centered, value-based delivery and introduced governance and agile portfolio-management practices.
- **Led high-value initiatives** including the Value Driver Tree and Global Plant Analytics programs, with more than \$10M in projected business value.
- **Strengthened enterprise foundations** through data governance, quality, security and compliance controls, while advancing AI/ML, IoT and scalable cloud analytics use cases.
- **Provided executive portfolio reporting** linking program performance, adoption, business drivers and benefits to enterprise objectives and KPIs.

Vale | Global Program Leader, Advanced Analytics*Global Digital Transformation Program***Jan 2017 – Jun 2023**

- **Built and led the global Advanced Analytics Centre of Excellence** with a \$10M–\$15M portfolio and multidisciplinary internal and partner teams operating across multiple countries.
- **Delivered enterprise value** through programs reporting more than \$80M in audited annual benefits across supply chain, asset health, process performance and compliance.
- **Established a scalable AI delivery framework** covering opportunity selection, data readiness, model development, governance, deployment, adoption and benefits realization.
- **Directed operational analytics use cases** across predictive maintenance, mine and plant performance, rail and vessel logistics, chartering, market forecasting and sustainability.
- **Advised senior leadership** on AI strategy, portfolio prioritization and responsible scaling, translating analytical outputs into operational and commercial decisions.
- **Managed strategic partnerships** with technology firms, universities and specialist providers to accelerate innovation while maintaining internal ownership and capability growth.

BHP | Business Analyst & Project Manager*Master data management | Maintenance Centre of Excellence***Jan 2016 – Dec 2016**

- **Developed master-data governance** policies, standards and ownership practices to improve the accuracy, accessibility and traceability of global maintenance data.
- **Led data cleansing and enrichment** and connected governed asset information with maintenance analytics and predictive-maintenance workflows.
- **Automated validation and performance monitoring** through data-quality KPIs and dashboards, reducing manual effort and improving decision confidence.

CRC Mining (now Mining3) | Data Analytics Projects Manager*Applied mining technology research | Brisbane, Australia***Jul 2012 – Dec 2015**

- **Managed applied analytics projects** from concept and industry scoping through modelling, validation, delivery and knowledge transfer.
- **Directed research into** haul-truck fuel consumption, payload variance, truck bunching, mine energy efficiency, predictive maintenance and operational simulation.
- **Built industry–academic partnerships** and led multidisciplinary data-science and engineering teams against scope, budget and quality objectives.
- **Accelerated adoption** through workshops, technical reporting and practical decision-support tools for mine operators and engineering teams.

Shell | Research & Development Project Manager*Energy efficiency, advanced modelling and technology development***Apr 2004 – Jun 2012**

- **Led multidisciplinary R&D programs** from concept and feasibility through development, partner collaboration, risk management and commercialization planning.
- **Managed project pipelines and budgets** while aligning technical programs with energy-efficiency, sustainability, reliability and long-term business objectives.
- **Developed and evaluated solutions** for refinery and industrial energy performance, advanced modelling, fuel efficiency and cleaner-energy applications.
- **Built external research partnerships** with universities, institutes and technology providers and communicated findings to senior decision-makers.
- **Mentored researchers and project managers** and embedded structured project governance, technical assurance and continuous improvement practices.

SELECTED INDUSTRY & ADVISORY ENGAGEMENTS

Selected engagements delivered alongside corporate, research or advisory responsibilities, highlighting technical scope and industry breadth.

Year	Organization	Engagement focus
2025	Magotteaux	Product-line leadership for digital comminution solutions, connecting grinding science, wear and process data with customer value and scalable product adoption.
2024	Komatsu	Payload-performance analysis linking fuel burn, speed-on-grade, duty severity, component stress and maintenance-cycle optimisation.
2023	Hitachi	Predictive fuel-reduction modelling using telemetry, payload, route, grade, speed, idling and engine-load data.
2022	Molycop	AI-based optimisation of SAG and ball-mill energy use and grinding-media strategy across varying ore and operating conditions.
2020	Anglo American	Particle-size-distribution optimisation connecting fragmentation, comminution energy, throughput, recovery and plant stability.
2016	Barrick Gold	Loading-and-haulage performance framework covering cycle losses, queueing, payload variance, utilization and unit cost.
2014	Freeport-McMoRan	Integrated haul-truck fuel models combining fleet, route, payload, speed, grade, rolling resistance and operating context.
2008	Total	Heavy-truck diesel-formulation analysis balancing combustion efficiency, emissions, engine response, reliability and lifecycle cost.
2006	Aramco	Refinery energy baselining and opportunity prioritization across fired heaters, steam systems, rotating equipment and heat recovery.

APPLIED RESEARCH & INNOVATION PORTFOLIO

The completed-project portfolio comprises 15 applied programs across operational excellence, mine-to-mill optimisation, logistics, asset health, mineral exploration, market intelligence and sustainability. Selected examples are shown below.

Program	Partners/period	Technical contribution
Value Driver Tree for operational excellence	Newmont / IBM 2023–2024	Linked operational, financial and sustainability drivers through governed KPIs, scenario analysis and explainable analytics.
Integrated mine-to-mill optimization	Vale / JKMRC, The University of Queensland 2023–2025	Connected geometallurgy, fragmentation, haulage, crushing, grinding, energy, recovery and product quality through multi-objective optimisation.
Nickel prospectivity modelling	Vale / University of Granada 2022–2025	Integrated geological, geochemical, geophysical and spatial datasets using Random Forest, benchmarking and uncertainty mapping.
Chinese steel-market and iron-ore demand forecasting	Vale / DTI / EY 2022–2025	Replaced fragmented spreadsheet models with governed data pipelines, ensemble forecasting, scenario analysis and decision dashboards.

Program	Partners/period	Technical contribution
Vessel movement and destination prediction	<i>Vale / IBM 2020–2022</i>	Combined vessel movements, port calls, voyage history and commercial signals to predict destination, availability and regional supply–demand pressure.
Condition-based rail maintenance	<i>Vale / University of Genoa 2019–2022</i>	Converted streaming sensor data into adaptive remaining-useful-life predictions and risk-based maintenance decision rules.
Haulage energy and production simulation	<i>BHP, Rio Tinto, Anglo American / The University of Queensland 2012–2015</i>	Modelled payload variance, truck bunching, cycle time, fuel consumption and greenhouse-gas impacts using neural networks and discrete-event simulation.

Note: Program periods reflect the full partnership timelines.

BOOKS & THOUGHT LEADERSHIP

Author or editor of 13 published book titles, including a two-volume CRC Press set, with one further CRC Press title scheduled for publication. Selected and complete book records are consolidated below.

Year	Title	Role/publisher
2026	<i>LIFE 4.0: Human Life in the Age of Artificial Intelligence</i>	Author CRC Press
2026	<i>Advanced Analytics for Industry 4.0 — two-volume set: Traditional Industries and Technology Industries</i>	Author CRC Press
2025	<i>Mastering Time: Innovative Solutions to Complex Scheduling Problems</i>	Editor IntechOpen
2024	<i>Advanced Virtual Assistants: A Window to the Virtual Future</i>	Editor IntechOpen
2023	<i>Numerical Simulation: Advanced Techniques for Science and Engineering</i>	Editor IntechOpen
2022	<i>Advanced Analytics in Mining Engineering</i>	Author Springer
2022	<i>The Application of Ant Colony Optimization</i>	Editor IntechOpen
2021	<i>Virtual Assistant</i>	Editor IntechOpen
2020	<i>Data Analytics Applied to the Mining Industry</i>	Author CRC Press
2020	<i>Success Management: Self-Management Strategies for Ultimate Life Success</i>	Author Xlibris AU
2019	<i>Improve the Energy Efficiency of Haul Trucks in Surface Mines</i>	Author Lambert Academic
2019	<i>Advanced Analytics and Artificial Intelligence Applications</i>	Editor IntechOpen

Forthcoming and manuscripts in development

- **Forthcoming:** Geotechnical Instrumentation and Monitoring in Mining 4.0, Author, CRC Press, scheduled 2026.
- **Manuscript in development:** Advanced Analytics for Pit-to-Port Optimization in the Mining Industry.
- **Manuscript in development:** Advanced Analytics for Mine-to-Mill Optimization in the Mining Industry.

SELECTED PEER-REVIEWED PUBLICATIONS

Alamdari, S.; Basiri, M.H.; Mousavi, A.; Soofastaei, A. (2022). Application of Machine Learning Techniques to Predict Haul Truck Fuel Consumption in Open-Pit Mines. *Journal of Mining and Environment*, 13(1), 69–85. DOI: [10.22044/jme.2022.11577.2145](https://doi.org/10.22044/jme.2022.11577.2145)

Soofastaei, A. (2019). Energy-Efficiency Improvement in Mine-Railway Operation Using AI. *Journal of Energy and Power Engineering*, 13(9), 333–348. DOI: [10.17265/1934-8975/2019.09.002](https://doi.org/10.17265/1934-8975/2019.09.002)

Soofastaei, A.; Aminossadati, S.M.; Kizil, M.S.; Knights, P. (2016). A Discrete-Event Model to Simulate the Effect of Truck Bunching Due to Payload Variance on Cycle Time, Hauled Mine Materials and Fuel Consumption. *International Journal of Mining Science and Technology*, 26(5), 745–752. DOI: [10.1016/j.ijmst.2016.05.047](https://doi.org/10.1016/j.ijmst.2016.05.047)

Soofastaei, A.; Aminossadati, S.M.; Kizil, M.S.; Knights, P. (2016). A Comprehensive Investigation of Loading Variance Influence on Fuel Consumption and Gas Emissions in Mine Haulage Operation. *International Journal of Mining Science and Technology*, 26(6), 995–1001. DOI: [10.1016/j.ijmst.2016.09.006](https://doi.org/10.1016/j.ijmst.2016.09.006)

Soofastaei, A.; Aminossadati, S.M.; Arefi, M.M.; Kizil, M.S. (2016). Development of a Multi-Layer Perceptron Artificial Neural Network Model to Determine Haul Trucks Energy Consumption. *International Journal of Mining Science and Technology*, 26(2), 285–293. DOI: [10.1016/j.ijmst.2015.12.015](https://doi.org/10.1016/j.ijmst.2015.12.015)

Complete publication record available separately. www.soofastaei.net

SELECTED KEYNOTES & INDUSTRY PRESENTATIONS

More than 85 conference, keynote, webinar and industry presentations delivered across five continents since 2004. Selected recent and flagship engagements:

Year	Presentation	Event/location
2026	AI-Driven Process Plant Optimization: Comminution Booster	MetPlant 2026 Adelaide, Australia
2026	Comminution Booster	MINEXCHANGE 2026 SME Annual Conference & Expo Salt Lake City, USA
2026	Digitalization and Industry 4.0 in Iron Ore Agglomeration: AI/ML for Asset and Process Optimization	ICSPB 2026 Jamshedpur, India
2026	Integrating Machine Learning and Data Governance in Robotics: Strategies for Enhanced Operational Efficiency	3rd International Conference on Robotics and Automation Madrid, Spain
2026	The Role of Digital Twins in Smart Manufacturing	Smart Manufacturing Summit 2026 Melbourne, Australia
2025	Applied AI in Mining: Opportunities and Challenges	Digitalization & AI in Mining Australia Perth, Australia
2025	Applied AI for Smart Maintenance	Mine Maintenance, Asset Management & Reliability Strategies Conference Perth, Australia
2025	Driving Innovation in Critical Minerals through Advanced Analytics and Data-Driven Strategies	Minera 5.0 Lima, Peru
2025	Chief Data and Analytics Officer Role in the Mining Industry	CDAO Brisbane 2025 Brisbane, Australia
2025	How AI Is Reshaping the Mining Industry	CIIT Latam Congress 2025 Lima, Peru Keynote
2023	AI Application in Mining: Opportunities and Challenges	MiningTech World Madrid, Spain Keynote
2023	Integrating AI into Mining Operations	8th International Conference on Geology and Mine Planning Santiago, Chile Keynote
2023	Digital Transformation in Mining: An Open Window in Front of Mining 4.0	International Conference on Digital Transformation in Steel & Mining Industry Tehran, Iran Keynote
2023	Building Fully Autonomous Mines from Pit to Port	3rd Digital Mines 2023 Virtual event Keynote
2023	Future of Mining: How Digital Solutions Can Support Sustainable and Responsible Mining	Mining 4.0 Roadmap for the Future Toronto, Canada Keynote
2023	General AI in Mining Operations	Resourcing Tomorrow / Mines and Money 2023 London, United Kingdom

EDUCATION

Doctor of Philosophy: Information Technology/Applied AI in Mining Energy Efficiency

The University of Queensland, Brisbane, Australia

Thesis: Development of AI Models to Improve the Energy Efficiency of Haul Trucks in Surface Mines

Master of Engineering: Systems Engineering

Whiting School of Engineering, Johns Hopkins University, Baltimore, USA

Final Project: Leveraging Applied AI and Value Engineering for Enhanced Productivity and Energy Efficiency

Bachelor of Engineering: Mechanical Engineering

Whiting School of Engineering, Johns Hopkins University, Baltimore, USA

Final Project: Advanced Analytics for Energy Consumption Auditing and Management Optimization

CREDENTIALS & EXECUTIVE EDUCATION

2023	Certified ScrumMaster (CSM)	Scrum Alliance
2022	Certified Leadership Professional	GAFM Global Academy of Finance and Management
2020	Leadership and Management Certificate	Harvard Business School Online
2019	PMI Agile Certified Practitioner (PMI-ACP)	Project Management Institute
2019	Disciplined Agile Scrum Master	Project Management Institute
2015	Project Management Professional (PMP)	Project Management Institute

TECHNOLOGY LANDSCAPE

Cloud & data platforms	Microsoft Azure, Azure Synapse, Azure Machine Learning, AWS, Snowflake, Databricks, Hadoop and Spark
Analytics & engineering	Python, R, SQL/PLSQL, MATLAB, TensorFlow, PyTorch, Keras, scikit-learn, Jupyter
BI & workflow	Power BI, Tableau, Alteryx, KNIME, Git/GitHub, Microsoft Project, ArcGIS
Enterprise systems	SAP and SAP MDG, Oracle E-Business Suite, Microsoft Dynamics 365, Informatica, IBM InfoSphere

PROFESSIONAL AFFILIATION & LANGUAGES

Professional affiliation: MIEAust — Member, Engineers Australia | **Languages:** English

