

SENIOR ENGINEER TRAIN-TRACK DYNAMICS

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| DEPARTMENT/UNIT | Institute of Railway Technology |
| FACULTY/DIVISION | Faculty of Engineering |
| CLASSIFICATION | HEW Level 7 |
| DESIGNATED CAMPUS OR LOCATION | Clayton campus |

ORGANISATIONAL CONTEXT

At Monash, work feels different. There's a sense of belonging, from contributing to something groundbreaking – a place where great things happen. You know you are part of something special and purposeful because, like Monash, your ambitions drive you to make change.

We have a clear purpose to deliver ground-breaking intensive research; a world-class education; a global ecosystem of enterprise – and we activate these to address some of the challenges of the age, Climate Change, Thriving Communities and Geopolitical Security.

We welcome and value difference and diversity. When you come to work, you can be yourself, be a change-maker and develop your career in exciting ways with curious, energetic, inspiring and committed people and teams driven to make an impact – just like you.

Together with our commitment to academic freedom, you will have access to quality research facilities, infrastructure, world class teaching spaces, and international collaboration opportunities.

We champion an inclusive workplace culture for our staff regardless of ethnicity or cultural background. We have also worked to improve gender equality for more than 30 years. Join the pursuit of our purpose to build a better future for ourselves and our communities – #ChangeIt with us.

The Faculty of Engineering is one of the largest in Australia, renowned worldwide for the quality and calibre of our teaching, research and graduates. We offer a comprehensive range of undergraduate, graduate, postgraduate and higher degree by research programs in a wide range of engineering disciplines. Our research activities provide a platform for establishing a thriving educational enterprise and our staff are committed to creating a dynamic learning environment. The research

activities range from fundamental studies to research with a strong applications orientation. To learn more about the Faculty of Engineering, please visit our website.

The Institute of Railway Technology (IRT) is the premier track and vehicle research centre in Australia and it provides world leading solutions in the areas of wheel-rail interface design, track design and maintenance as well as rollingstock assessments and modelling. Institute undertakes technology development, applied research and consulting activities for the railway industry. These activities are undertaken under contractual arrangements with more than 150 client organisations.

This Institute is 100% funded through these industrial contracts. It has an established track record in solving railway-related technical issues, and its solutions have been adopted by railway systems throughout the world. Approximately 20% of the Institute's activities are conducted off-shore. The Institute's comprehensive and holistic systematic approach to problem solving using its team of experienced technical specialists has led to significant savings to its customers' operating and capital costs, surpassing all expectations and providing value-added environmental benefits. To learn more about IRT, please visit IRT website ww.irt.monash.edu.

POSITION PURPOSE

The Senior Engineer - Train-Track Dynamics performs a range of complex technical activities related to the assessment and analysis of train-track interaction and will often lead individual research projects for enterprise partners and involve members from other Monash IRT teams.

Building on a strong technical knowledge base, developed through applied research and experience, the Senior Engineer Train-Track Dynamics will be responsible for scoping and undertaking technical activities and deliverables related to a wide range of train-track related projects. These projects will involve advanced analytical techniques and may include production and refinement of railway asset models, use and development of novel simulation and analysis techniques and data collection methods.

The Senior Engineer Train-Track Dynamics will be required to work independently or in a team and show high level of professional maturity. There will also be a need to interact with clients and industry partners in order to fulfil obligations and develop relationships.

Reporting Line: The position reports to the Team Leader, Wheel-Rail Interface, Monash Institute of Railway Technology, working under broad direction with a considerable degree of autonomy

Supervisory Responsibilities: The number of reports will vary based on project needs specifically around skill sets required to meet project outcomes

Financial Delegation: Not applicable

Budgetary Responsibilities: Not applicable

KEY RESPONSIBILITIES

1. Plan and undertake research and consulting projects related to the assessment and analysis of train-track interaction and derailment investigation
2. Utilising knowledge and skills in the production and refinement of analysis tools, including multi-body dynamics models, assist to drive improvements and the development of novel simulation techniques to improve Monash IRT's analysis capabilities. This will also include coordinating regulatory compliance, preparation of contract research proposals, and assisting with the management of budget, resources, materials, and logistics
3. Develop, design and implementation of strategies, techniques and solutions necessary to meet contacted obligations and deliverables
4. Develop technical reports and documents to a very high professional standard

5. Undertake field work to suit project requirements and IRT resource availability. This will include undertaking measurements, processing data, interpretation, reporting and client liaison while on site
6. Maintain extensive up-to-date knowledge of related research, including new and innovative analysis techniques, methodologies, equipment and theory
7. Participate in and present at industry functions and events, such as conferences and workshops, in order to promote Monash IRT capabilities
8. Provide a support role in the development and delivery of related short courses held by Monash IRT
9. Follow and enforce relevant occupational health and safety (OH&S) requirements and compliance associated with both local (Monash) and off-site (Client) working environments. This includes the strict adherence to Client safety rules and requirements while on their site(s)
10. Other duties as directed from time to time.

KEY SELECTION CRITERIA

Education/Qualifications

1. The appointee will have:
 - Bachelor degree in Engineering; and
 - Postgraduate qualifications and some experience in train-track or system dynamics; or
 - Substantial relevant experience and expertise in train-track dynamics.

Knowledge and Skills

2. Minimum of 5 years continuous industry experience undertaking dynamic modelling studies and related, testing, monitoring, data collection, analysis and reporting
3. Highly-developed planning and organisational skills, with experience establishing priorities and meeting deadlines in a complex environment
4. Demonstrated ability to work autonomously, as well as within a productive team environment and provide leadership and supervision to staff members
5. Proven ability to solve highly complex problems, including through the application/use of sophisticated analytical and diagnostic skills, discretion, initiative, innovation and specialised expertise
6. Developed interpersonal and communication skills, including the ability to liaise with senior management, stakeholders, clients and public audiences, and communicate complex issues in a clear, succinct manner
7. Demonstrated commitment to safe work practices within a high-risk environment
8. Flexibility to undertake travel, field work, night shift and emergency work to fulfil urgent customer requirements.

OTHER JOB RELATED INFORMATION

- There may be a requirement to work additional or longer hours from time to time
- Travel to industry partner or external stakeholder sites and other campuses of the University may be required
- There will be a requirement to perform field work from time to time

- There may be peak periods of work during which taking of leave may be restricted
- Fit to undertake field work in railway environment (pre-employment medical) will be required, as well as medical and drug testing when required to work on Client sites

GOVERNANCE

Monash University expects staff to appropriately balance risk and reward in a manner that is sustainable to its long-term future, contribute to a culture of honesty and integrity, and provide an environment that is safe, secure and inclusive. Ensure you are aware of and adhere to University policies relevant to the duties undertaken and the values of the University. This is a standard which the University sees as the benchmark for all of its activities in Australia and internationally.