Andre Volpato

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LinkedIn Profile
+61 416 922 722
Sydney, Australia

EDUCATION

Bachelor of Engineering (Mechanical), Distinction, University of New South Wales

PROFESSIONAL MEMBERSHIPS

Member, Engineers Australia (MIEAust)

SKILLS

Vehicle Dynamics & Multibody Simulation using Vampire Pro

Microsoft Excel, Word, PowerPoint

SolidWorks (incl. Simulation)

Bluebeam Revu

Technical reporting & documentation

Testing, Validation & Compliance

Engineering standards & compliance (AS / ISO exposure)

STANDARDS

Contributed to the development group for AS 7509.

CAREER SUMMARY

Analytical and solutions-focused Mechanical Engineer with over 4 years of experience specializing in railway rollingstock simulation, vehicle dynamics, and structural analysis. Proven expertise in conducting complex multibody dynamic vehicle simulations, modelling wheel-rail interaction, and evaluating bogie performance against rigorous rail standards. Extensive background executing Site Acceptance Testing (SAT) and Factory Acceptance Testing (FAT) for critical transport assets, combined with strong project engineering experience on mega-scale infrastructure projects. Adept at translating complex simulation data into technical compliance documentation to verify safety, stability, and reliability in highly regulated environments.

PROFESSIONAL EXPERIENCE

Engineering Consultant
Rail Confidence **(JAN 2022 -)**
Rail Confidence is an independent rail-specific consultancy offering a broad range of engineering services to the rail industry.

- **Multibody Simulation & Dynamics:** Conduct advanced dynamic vehicle simulations using Vampire Pro, focusing on pitch and bounce assessments for wagons and lateral track shifting forces of infrastructure machinery (e.g., rail grinders).
- **Wheel-Rail Interaction & Analytics:** Execute critical safety and stability calculations for network acceptance, explicitly assessing curve stability, bogie X-factor, P2 forces, P/D ratios, and rail contact stresses.
- **Kinematic & Swept Path Modelling:** Utilize CAD software to build rigorous models for kinematic envelopes, outline gauge swept paths, vehicle-to-vehicle clearance, and curved platform boundaries.
- **Experimental Testing & Validation:** Perform hands-on Site Acceptance Tests (SAT) on infrastructure maintenance and road-rail vehicles; plan and execute static and dynamic testing programs to evaluate fleet commissioning requirements.
- **Structural Analysis & Design:** Lead structural design analysis and modification projects for rollingstock using CAD and finite element analysis (FEA); engineered manufacturing drawings for custom test rigs to measure brake cylinder force.
- **Technical Compliance & Reporting:** Author comprehensive engineering reports, verification documents, and technical presentations to facilitate client procurement and independent safety approvals.

Site Engineer [Secondment]
MTR Corporation (Australia) **(NOV 2022 – MAR 2024)**
MTR delivered the Trains, Systems, Operations and Maintenance (TSOM) package for the Sydney Metro City and Southwest project.

- **Systems Integration:** Coordinated the installation, interface management, and completions tracking for signaling, communication, and tunnel systems within a live operator environment under the Tunnel Related Installation Program (TRIP).
- **Design Verification:** Inspected and reviewed built civil and structural infrastructure against approved engineering designs to capture defects, manage risks, and validate operational readiness.
- **Cross-Functional Collaboration:** Managed multi-stakeholder interfaces, aligning principal contractors and client teams to ensure technical milestones met stringent safety and quality requirements.