



Years of Industry Experience

- 1+ year

Qualifications and Memberships

- Engineers Australia, Member
- The Australian Institute of Traffic Planning and Management, Member
- Graduate Certificate in Business
- Master of Structural Engineering
- Bachelor of Civil Engineering

Key Skills and Competencies

- Transport modelling
- Data analytics

Professional History

- 2021 – Present | SMEC
Graduate Transport modeller
- 2019 – 2020 | Egis Graduate
Civil Engineer

Referees

James Parrot
Manager, Transport Planning and Analytics

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Manger

Business Development Manager
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Project Coordinator
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Eligibility and Background

I am a Graduate Traffic Modeller in SMEC's Transport Planning and Analytics team. I am also doing a PhD on Transport Planning at Swinburne University of Technology. I graduated with a bachelor's degree in civil engineering and a master's degree in Structural Engineering from University Putra Malaysia in 2018. I am excited to be applying for this opportunity and representing the young professionals of AITPM in South Australia. I believe this opportunity is aligned with my career objective to achieve of achieving a long-term goal of being a recognized transport planner where I can significantly involve in designing policies, strategies and plans that contribute to meeting social, economic and environmental needs.

My Story with Transport Planning

My journey in this field started when I was working with one of the companies that was bidding to build the Northeast Link Project in Victoria. It is the largest road project in Australia. I was working with transport planners and modellers, and they were using some advanced technologies to predict the traffic flow in 2030 using the real-time traffic data available. Although, the short period of time I spent there because of the withdrawal of our consortium from the bid, the exposure to the application of some of the advanced technologies in Transport planning has been developed into a great interest in this field. The interest expanded after that position, and I kept playing around with the GIS data of the project and I was able to integrate it into Melbourne datasets.

Furthermore, COVID 19 experience made me think of the changes that it caused to travel behaviour in Victoria, where working from home became popular among the majority of certain type of professions. And I thought that this could be a good habit that can reduce traffic congestion. So, I used the data that I have from my previous job and started to develop a model that reflect the impact that can telecommuting can have on road traffics. The model was simple, I assumed that 100% of white-collar jobs works from home and I found that this strategy can reduce travel demand by half and eliminate traffic congestion on peak hours. And I started to think of the northeast link project and its huge cost "16 billion "and how if we spend a quarter of that amount on promoting telecommuting, we can generate a cost benefit of 1.5 dollar for each dollar we spend which similar to cost benefit of the Northeast Link Project. This experience has further strengthened my interest in the field of transport planning, and I decided to do a PhD and use that experience to develop a well-researched framework that can put telecommuting as an option to reduce our reliance on building new roads as a main strategy to reduce traffic congestion.

Graduate Traffic Modeller | SMEC Australia Pty Ltd | Adelaide

March 2021 –

- Worked with senior modellers on traffic flow prediction for the North South Corridor project using MASTEM Strategic Transport Model.
- Used GIS to analyse MASTEM findings and produce outputs such as travel time savings and traffic difference between base case and project case.
- I have used SIDRA INTERSECTION for analysing intersections and to calibrate base models to reflect on site conditions.
- Worked on optimizing the operation of proposed concepts for Shepherds Hill-Brighton Intersection in SA to ensure its efficiency and reliability.
- Analysed a dataset of incidents reported on Main South Road in SA.
- Helped on preparing traffic management plan, emergency risk management plan and incident response strategy.
- Analysed traffic and queen length count to determine the one that most accurately reflects the current significant queuing and excessive delay times experienced on one of the intersections in SA.

Transport Planning Researcher | Swinburne University of Technology | Melbourne

June 2020 –

- Virtual Testing of Autonomous Vehicles with PTV Vissim
- Programming with Java to run Multi-Agent Transport Simulation (MATSim)
- Modelling the impact of transport scenarios on land-use and accessibility using UrbanSim
- Developing a telecommuting choice model for Melbourne.
- Integrating telecommuting choice model with Strategic transport models
- Analysing Victorian Integrated Survey of Travel and Activity (VISTA).

Graduate Civil Engineer | Egis Projects Asia Pacific | Melbourne, VIC Australia

Dec 2019 – Feb 2020

- Worked with senior modellers on traffic flow prediction for the North East Link project using SUMO Simulation of Urban Mobility and the real-time traffic data available.
- I have used Python programming in traffic modelling, model development, calibration
- Converted the network dataset of the North East Link Project into an intelligent model of road system which contain not only the location and attributes of roads, but also information about how roads relate to one another.
- Worked on developing a model to solve the problem of finding the closest incident respond unit and the fastest routes between the unit and the incident using Network Analysis tool in ArcGIS.
- Helped on preparing traffic management plan, emergency risk management plan and incident response strategy.
- Participated in preparing Traffic Management plan that ensure a safe environment, optimised traffic flow and in compliance with the project's Outline Scope and Requirements, Road Management Act and the Worksite Safety Traffic Management Code of Practice.

Intern Civil Engineer | UGL Limited | Melbourne

Feb 2020 – April 2020

- Determined the appropriate escalation factors for a range of cost categories, such as plant, employee, labour and materials costs including steel, bitumen, and crude oil.
- I analysed input and output indexes published by Australian Bureau of Statistics (ABS) such as Consumer Price index, Producer price index, Wage price index and Road and Bridge Construction Index to create a new index for the escalation costs of rail projects in NSW.
- I also gained experience in reading and interpreting drawings of the Light Rail project in the Gold Coast and worked on the preparation of the Public Utility Management plan and the assessment of the risk of Aerial transverse crossings and the underground transverse conflict with light rail track slab or System conduit bank.
- I have also prepared a Worldwide automated train analysis (GoA4) that provided a full description of the system across different regions of the world and covered a comparison between singling systems providers of the systems, rolling stock and rolling stock suppliers.

Master of Structural Engineering | University Putra Malaysia | Malaysia

Feb 2017 – Aug 2018

- I have developed a new concrete mix design with high compressive and tensile strength to be used in casting Ultra High-Performance Pre-Cast Concrete segments.
- I designed a representative sample for concrete tower segment and tested it against lateral movement
- I achieved concrete tower with high energy dissipation, low strength degradation and low residual displacement.
- I successfully predicted the seismic behaviour of concrete tower by using the finite element tool ABAQUS
- Through this project, I have learned many other skills such as 3D-modeling and MATLAB. I developed my research, analytical and problem-solving skills.