

Transport Research Bulletin

Transport Research
Institute Newsletter

Issue No 8 – Dec 2021



Transport
Research
Institute

Welcome to TRI's Christmas 2021 Newsletter



As we are all reflecting on the year's difficulties and COVID issues, it is worth noting that the TRI has had a particularly productive year. Firstly, we have reaffirmed our status as a formal University Centre at ENU for a further three years, under the new directorship of Professor Pat Langdon. This has protected our future for ambitious plans for further expansion of research, teaching and consultancy. We have also continued to offer our industry accredited MSc in Transport Planning and Engineering.

We celebrated TRI's 25th anniversary with a series of successful public events, including a TRI timeline, a research showcase conference, a public webinar with the Scottish Climate Assembly. We hosted our first annual Solar and Wind Power Conference online in April. We hope to see many of you again at next year's event on **Tuesday 15th March!** This year, the popular Annual Electric Vehicle Event spanned 3 days, involving a face-to-face EV School Workshop for S5/S6 pupils held at Edinburgh College in collaboration with our Widening Participation team on 12th October. This was followed by a 2-day online conference on Road Transport on 13th and Air Transport on 14th October.

Thank you to everyone who managed to attend our events and for your continued support – it was great to see you! We all wish you a happy, healthy Christmas and New Year!

To keep up with our latest news and activities, why not subscribe to the [TRI blog](#) and follow us on twitter: [@EdNapierTRI](#). Feel free to get in touch with us by email with any queries you may have or if you wish to be added to our mailing list: tri@napier.ac.uk. We'd love to hear from you.

The following is a snapshot of TRI's activities during 2021 and what's in store for 2022.

blogs.napier.ac.uk/tri/

Since it was established in 1996, the Transport Research Institute (TRI) at Edinburgh Napier University has delivered high quality transport research, consultancy and knowledge transfer projects to a range of funding bodies.



Dates for your diary

Solar lunchtime online seminar series:

- Wednesday 12th January (12pm) - Prof Tariq Muneer - 'Solar energy at Napier'
- Wednesday 9th February - Dr Firdaus Sukki
- Thursday 10th March - Associate Professor Nazmi Sellami

Solar and Wind Power Conference – Tuesday 15th March 2022

Edinburgh Napier University has been at the forefront of Solar and Wind energy research with the largest wind tunnel being installed as far back as 1985 and the then largest solar PV façade installed at it Merchiston campus in 2005.

Napier's 2nd international conference on Solar and Wind Energy will bring together a panel of experts who will present their latest R&D findings in a virtual ½ day conference on 15th March 2022. The programme and line-up of speakers will be revealed in the new year.

Park4SUMP training event – Feb/March 2022 (TBC). More details will follow soon.

54th UTSG Conference - TRI have been selected to host the 54th UTSG (Universities' Transport Studies Group) Conference on 4th-6th July 2022 (<http://utsg.net/annual-conference>). The conference will be held at Craiglockhart.

8th Annual Electric Vehicle Event – Next year's event is going to be even bigger and better! Keep an eye out on our blog for more details. <https://blogs.napier.ac.uk/tri/>

TRI's 25th anniversary events are listed on the ENU [webpage](#) and further details of the events (including presentations and recordings) are posted on the TRI's 25th anniversary [blog](#).

Did you know?



Many congratulations to **Prof Tariq Muneer**, who was awarded the SOLARIS life-time achievement award by **The Heat Transfer Society of Japan**. This is in recognition of his 44 years of "life-long contribution of essential work on solar radiation and daylight modelling, education and international exchange." The Solaris conference provides a platform for meetings for researchers in the area of solar energy and efficient energy technology.

Tariq gave a keynote address to the **11th Solaris International Conference** in Tokyo in September on 'Solar Radiation and Illuminance Models'.

Prof Muneer has published 10 books and over 280 articles on the subject of renewable energy and sustainable transport.



Richard Llewellyn was appointed a Trustee of the Chartered Institution of Highways and Transportation (CIHT) and Chair of the charity's Education and Professional Development Strategic Board.

He will undertake the statutory duties required of the trustees and has been given the specific remit of overseeing the institution's activities relating to education and professional development. Read more [here](#).



Prof Adrian Davis hosted a 'Road Transport and Public Health: An introductory one-day training workshop' in collaboration with SCOTS (Society of Chief Officers of Transportation in Scotland) in November. This was held online for Scottish Local Authority roads departments and Regional Transport Partnerships.

This session provided a unique introduction to the links between road transport and public health. It provided attendees with the necessary insights and confidence to engage more effectively with public health professions in order to achieve transport solutions and better health outcomes through transport planning policies and interventions. It is proposed to hold future training events next year.

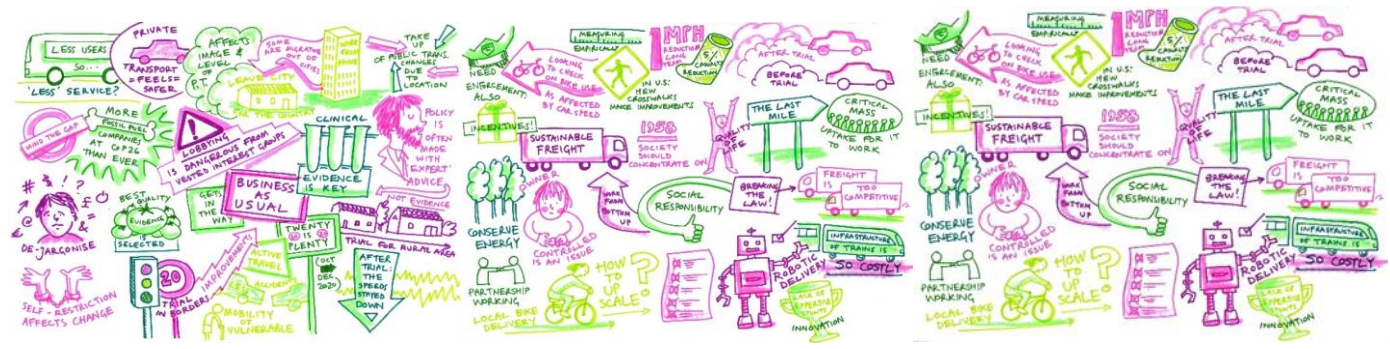


Prof Achille Fonzone was involved in a panel session on behavioural change at Michelin Scotland Innovation Parc's 'Demonstrator and Showcase Event' in Dundee. He spoke on the topic 'The human side of mobility: exploring the critical relationship between technology and behaviour'.

Both **Achille** and **Dr Greg Fountas** presented at the 100th Annual Meeting of Transportation Research Board (TRB) in January and will look forward to participating at next year's event.

- Prof Adrian Davis had an article published in the Scotsman on 'Low traffic neighbourhoods could help us kick some bad habits' in The Scotsman.
- Dr Achille Fonzone, Dr Greg Fountas and Lucy Downey, produced a [report](#) on the 'Impact of COVID-19 on travel behaviour, transport, lifestyles and location choices in Scotland,' with backing from the Scottish Funding Council. The report appeared in several newspaper articles. See also post on [TRI blog](#).

"**TRI meets Scotland's Climate Assembly**" webinar took place online on 30th November involving Prof Achille Fonzone, Prof Adrian Davis, Dr Jonathan Cowie, Dr Greg Fountas and Susan Tully presenting their latest research. Chaired by Prof Pat Langdon, we welcomed Susie Townend who heads the secretariat for Scotland's Climate Assembly. The following illustrations by artist Rosemary Cunningham were a fantastic way of capturing the research areas and discussions.





Newcomers to TRI

- Sorran Temple joined TRI as a Research Assistant.
- Adebola Olowosegun returned to TRI to take on the post of Research Fellow in February. He has been working with Prof Adrian Davis and Dr Greg Fountas on the Scottish Borders project on 'Monitoring & Evaluation of traffic calming measures.'
- Clare McTigue returned to TRI as a Research Fellow in May. She has been working on the HEART (Hydrogen electric and automated regional transportation) project with Prof Pat Langdon.

Graduations

Congratulations to **Mohamed Jama Mohamed** who graduated this year on "The use of Uberpool and its Relationship with Public Transport – A London case study".

Current projects

Prof Pat Langdon (Project Lead), Susan Tully: **Park4SUMP** (EU Horizon 2020 Project) [1 Sep 2018 - 28 Feb 2022]

Dr Achille Fonzone (Project Lead), Prof Christiane Bielefeldt, Dr Damian Stantchev: **SUNRISE** [1 May 2017 – 31 Jul 2021]

Dr Jonathan Cowie (Project Lead): **Smart Urban Freight Logistics Hubs** (SURFLOGH) [1 Jun 2017 – 31 Mar 2023]

Dr Jonathan Cowie (Project Lead): **SESTran/Forth Ports Rail Freight Study** [1 Jun 2020 - 31 May 2021]

Dr Achille Fonzone (Project Lead), Lucy Downey: **An Autonomous Bus Service from Park & Ride Across Forth Bridge to Edinburgh Park Train & Tram Interchange** [1 Apr 2019 - 30 Nov 2021]

Prof Adrian Davis (Project Lead): **Essential Evidence for Scotland 3** [1 Oct 2021 - 30 Sep 2022]

Prof Adrian Davis (Project Lead): **Increasing Physical Activity through Active Travel - Year 3** [1 Dec 2021 - 30 Nov 2022]

Prof Wafaa Saleh (Project Lead); Augustus Ababio-Donkor: **Revealing fair and actionable knowledge from data to support women's inclusion in transport systems** [1 Nov 2018 - 31 Jan 2022]

Prof Pat Langdon (Project Lead), Dr Grigorios Fountas, Dr Clare McTigue: **Project HEART; High-volume Electric and Automated Regional Transportation** (Innovate UK) [1 Dec 2020 - 31 May 2022]

Dr Grigorios Fountas (Project Lead), Prof Adrian Davis, Dr Adebola Olowosegun: **Monitoring & Evaluation of traffic calming measures in Scottish Borders** [16 Nov 2020 - 31 Mar 2022]

Dr Stathis Tingas (Project Lead): **Computational analysis of a zero-carbon hydrogen fuelled thermal engine for heavy duty transport applications** [1 Oct 2021 - 31 Mar 2022]

Dr Stathis Tingas (Project Lead), Prof Tariq Muneer, Prof Pat Langdon, Dr Greg Fountas, Dr Viviani Onishi: **Accelerating the Electric Vehicle Revolution** [1 Apr 2021 - 31 Mar 2022]

Pat Langdon, Keng Goh, Luigi La Spada, Hongnian Yu, Scottish Ambulance Service: **Developing innovation metrics for AI and ML on data sets, and Robotics in Emergency Medical Services** [1 Dec 2020 - 30 Apr 2021]



Journal Articles

Ahmed, S. S., Fountas, G., Eker, U., & Anastasopoulos, P. C. (in press). Are We Willing to Relocate with the Future Introduction of Flying Cars? An Exploratory Empirical Analysis of Public Perceptions in the United States. *Transportmetrica A: Transport Science*, <https://doi.org/10.1080/23249935.2021.1916643>

Barakat, B., Taha, A., Samson, R., Steponenaite, A., Ansari, S., Langdon, P. M., ...Keates, S. (2021). 6G Opportunities Arising from Internet of Things Use Cases: A Review Paper. *Future Internet*, *13*(6), <https://doi.org/10.3390/fi13060159>

Fountas, G., Fonzone, A., Olowosegun, A., & McTigue, C. (2021). Addressing Unobserved Heterogeneity in the Analysis of Bicycle Crash Injuries in Scotland: A Correlated Random Parameters Ordered Probit Approach with Heterogeneity in Means. *Analytic Methods in Accident Research*, *32*, <https://doi.org/10.1016/j.amar.2021.100181>

Gorrini, A., Choubassi, R., Messa, F., Saleh, W., Ababio-Donkor, A., Leva, M. C., ...Aragón, P. (2021). Unveiling Women's Needs and Expectations as Users of Bike Sharing Services: The H2020 DIAMOND Project. *Sustainability*, *13*(9), <https://doi.org/10.3390/su13095241>

Higatani, A., & Saleh, W. (2021). An Investigation into the Appropriateness of Car-Following Models in Assessing Autonomous Vehicles. *Sensors*, *21*(21), <https://doi.org/10.3390/s21217131>

Hsu, L., Wiratama, B. S., Chen, P., Saleh, W., Lin, H., & Pai, C. (2021). Pediatric Traffic Injuries on Halloween in the United Kingdom: Prevalence and Injury Severity. *International Journal of Environmental Research and Public Health*, *18*(17), <https://doi.org/10.3390/ijerph18179093>

Islam, F., & Fonzone, A. (2021). Bus passenger path choices after consulting ubiquitous real-time information. *Travel Behaviour and Society*, *23*, 226-239. <https://doi.org/10.1016/j.tbs.2021.01.001>

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Lashin, M. M. A., Khokhar, A., Alrowais, F., Malibari, A., & Saleh, W. (2021). Using Artificial Intelligence for Optimizing Natural Frequency of Recycled Concrete for Mechanical Machine Foundation. *Recycling*, *6*(3), <https://doi.org/10.3390/recycling6030043>

Llewellyn, R., Cowie, J., & Fountas, G. (2021). Solar-Powered Active Road Studs and Highway Infrastructure: Effect on Vehicle Speeds. *Energies*, *14*(21), 7209. <https://doi.org/10.3390/en14217209>

Pantangi, S. S., Fountas, G., Sarwar M. T., Bhargava, A., Mohan, S. B., Savolainen, P., Anastasopoulos, P. C. (2021). The impact of public-private partnerships for roadway projects on traffic safety: An exploratory empirical analysis of crash frequencies. *Analytic Methods in Accident Research*, *33*, <https://doi.org/10.1016/j.amar.2021.100192>

Rye, T., Hrelja, R., Monios, J., & McTigue, C. (2021). Partnership or franchising to improve bus services in two major English urban regions? An institutional analysis. *Transport Policy*, *114*, 59-67. <https://doi.org/10.1016/j.tranpol.2021.09.001>

Saleh, W., Justin, S., Alsawah, G., Al Ghamdi, T., & Lashin, M. M. A. (2021). Control Strategies for Energy Efficiency at PNU's Metro System. *Energies*, *14*(20), <https://doi.org/10.3390/en14206660>

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Semple, T., Fountas, G., & Fonzone, A. (2021). Trips for Outdoor Exercise at Different Stages of the COVID-19 Pandemic in Scotland. *Journal of transport & health*, *23*, <https://doi.org/10.1016/j.jth.2021.101280>

Shannon, D., & Fountas, G. (2021). Extending the Heston model to forecast motor vehicle collision rates. *Accident analysis and prevention*, *159*, <https://doi.org/10.1016/j.aap.2021.106250>

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Song, W., Hernández Pérez, F. E., Tingas, E., & Im, H. G. (2021). Statistics of local and global flame speed and structure for highly turbulent H₂/air premixed flames. *Combustion and Flame*, *232*, <https://doi.org/10.1016/j.combustflame.2021.111523>

Stanton, N. A., Brown, J. W., Revell, K. M. A., Kim, J., Richardson, J., Langdon, P., ...Thompson, S. (in press). OESDs in an on-road study of semi-automated vehicle to human driver handovers. *Cognition, Technology and Work*, <https://doi.org/10.1007/s10111-021-00682-z>

Tang, T., Fonzone, A., Liu, R., & Choudhury, C. (2021). Multi-stage deep learning approaches to predict boarding behaviour of bus passengers. *Sustainable Cities and Society*, *73*, <https://doi.org/10.1016/j.scs.2021.103111>

Tingas, E. (2021). Computational analysis of the effect of hydrogen peroxide addition on premixed laminar hydrogen/air flames. *Fuel*, *302*, <https://doi.org/10.1016/j.fuel.2021.121081>

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Wiratama, B. S., Chen, P., Chao, C., Wang, M., Saleh, W., Lin, H., & Pai, C. (2021). Effect of Distance to Trauma Centre, Trauma Centre Level, and Trauma Centre Region on Fatal Injuries among Motorcyclists in Taiwan. *International Journal of Environmental Research and Public Health*, *18*(6), <https://doi.org/10.3390/ijerph18062998>

Wiratama, B. S., Chen, P., Chen, L., Saleh, W., Chen, S., Chen, H., ...Pai, C. (2021). Evaluating the Effects of Holidays on Road Crash Injuries in the United Kingdom. *International Journal of Environmental Research and Public Health*, *18*(1), <https://doi.org/10.3390/ijerph18010280>

Reports

Downey, L., Fonzone, A., Fountas, G., & Semple, T. Impact of COVID-19 on travel behaviour, transport, lifestyles and residential location choices in Scotland. Scottish Funding Council

Conference Proceedings

Islam, M. F., Fonzone, A., & Fountas, G. (2021). Access to Ubiquitous Real-Time Information by Bus Passengers in Urban Contexts. In *2021 7th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS)* <https://doi.org/10.1109/mt-its49943.2021.9529270>