



Working for Safety on the Road

WORKING FOR SAFETY ON THE ROAD

# Newsletter Dec 2017

## Newsletter

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## From The Chair

### By Nick Croft

On 30th September 2017 there were 167443 registered charities in England and Wales alone, which people often say is a lot. But as far as AIRSO is concerned it just reinforces how our charity is fishing in a well-stocked sea. The reason there are so many charities stems from the economics and dynamics of the charity sector, which are completely different to those underpinning how businesses work.

Many charities are set up because there is a gap in the market. For instance, if you fall off a boat in the Severn estuary, with luck the Severn Area Rescue Association will rescue you. It was founded because the Royal

National Lifeboat Institution only operates at sea but doesn't cover rivers (except the tidal part of the river Thames), and the Severn estuary counts as a river. Sara was called out 66 times last year alone.

AIRSO was set up over 50 years ago to fill a gap in the Road Safety arena and we have been active in this business area ever since. The last year for AIRSO has been difficult and successful in almost equal measures. Our Blue Light User Conferences and the Sean Morley Awards were real highs for us and I'm really proud of how our members and the Trustees have all pulled together and we are looking forward to 2018. We continue to be members of PACTS and we regularly contribute to road safety debates and we still put on outreach events for members. That's said the world is changing and AIRSO needs to change to reflect members needs and expectations. AIRSO's Council of Management has been giving much consideration to the future of the organisation. However, if AIRSO is to continue to develop we need our

members to help us modernise and redesign our services. The AGM on 31st January 2018 will allow members to contribute to the debate about the future of AIRSO and I urge you to attend the meeting as we need to hear your views and ideas.

With the festive season now upon us both I and the AIRSO Council of Management want to take this opportunity to wish you a Merry Christmas and a Happy and Prosperous 2018 and to thank you for your continued support over the last twelve months.



# The Treasurer

Martin 'Bill' Bailey is currently scrutinising the AIRSO accounts in preparation for the AGM to be held on the 31<sup>st</sup> of January 2018.

Bill said "as ever a huge thank you to those acting as Trustees and to the members for their continued support, without whom there would be no Association".

As treasurer may I take this opportunity to remind all members of the association that the annual subscription is due at the start of January 2018.

## AGM

### Wednesday the 31<sup>st</sup> Of January 2018

**The AGM is coming around very quickly so don't miss out.**

**To be held at The Holiday Inn  
Coventry. M6 J2.**

### Day Delegate Rate £36/head

**Includes:**

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- ✓ Tea and coffee available all day
- ✓ Chef's daily selection of morning and afternoon treats
- ✓ Lunch in the restaurant or a working lunch (menu changes daily)
- ✓ Mineral water
- ✓ Confectionery

✓ Stationery box

✓ Wi-Fi access

**For those who wish to stay overnight the Hotel offers:**

### 24 hrs. Day Delegate Rate

**Bed & Breakfast Single Occupancy -  
£115.00 based on holding 10-20  
bedrooms for 30<sup>th</sup> January**

**Includes:**

- ✓ Meeting room hire
- ✓ Tea and coffee available all day
- ✓ Chef's daily selection of morning and afternoon treats
- ✓ Lunch in the restaurant or a working lunch (menu changes daily)
- ✓ Mineral water
- ✓ Confectionery
- ✓ Stationery box
- ✓ Wi-Fi access
- ✓ Car Parking
- ✓ Dinner
- ✓ Overnight accommodation
- ✓ Breakfast

**There are 300 free parking spaces available at the site.**



# Colin Travels to London

On the 29<sup>th</sup> of January 2018, Colin Pettener, MBE will be attending a Networking reception on behalf of AIRSO.

The coalition of road safety and motor industry bodies are holding a networking reception, hosted by the

**Rt Hon Sir Peter Bottomley MP.**

The event will take place on the House of Commons Terrace where they plan to discuss the coalition's future activities and priority areas for maximum impact on deaths and serious injuries on the roads. They will also be sharing the results of coalition members polling on driver's attitudes and knowledge of Autonomous Emergency Braking.



# Upcoming events

## UPCOMING EVENTS

1. *Preparation and event planning for the 2018 National Blue Light User's conference. Hinckley island. Sunday the 21<sup>st</sup> of January 2018*
2. *Council of Management meeting, Bedford. Tuesday the 23<sup>rd</sup> of January 2018.*
3. *AGM, 31<sup>st</sup> January 2018.*

## The Sean Morley Memorial Award

The third annual Sean Morley Award final took place at Portcullis House on the 23<sup>rd</sup> October and saw various bright and upcoming young people present their work to a panel of experts. The award gives people at the start of their career a chance to present their work in an environment where their research can be brought to the attention of the people who can directly influence road safety.

The winning project, entitled "Bayesian learning for road analysis" was submitted by **Daniel Morris** from the University of Surrey. With guests and judges including Sean's MP Craig Tracey, and Marcus Jones MP, the Minister for Local Government and increasing numbers of entries from students, the award is continuing to grow and develop, reaching more universities each year. Afterward, Sean's mum Kerry said

"We are so proud to have such able students submitting their work. The quality of the submissions is outstanding

and we want the award to be a platform to launch the research and new innovative ideas made by these young talented people into the world of road safety. Even if one of the submissions goes on to save lives then we have achieved a positive change in Sean's name. We have no doubt that Sean would have gone on to have a successful career, most likely in politics but had that opportunity taken away."

For more information about the projects shortlisted, or about next year's award, please see the event brochure or email [info@airso.org.uk](mailto:info@airso.org.uk)



Sean Morley

### About the award

Sean Morley was a 20 year old History and Politics undergraduate, about to return for his final year at Aberystwyth University. He was principled and intelligent, with a talent for rugby which saw him play for his university's first XV, and for Nuneaton RFC. He was described by those who knew him as outstanding, with great wit, natural charm, and an exceptional future ahead of him.

Sean was killed on September 2<sup>nd</sup> 2012 when he was hit by a car as he made his way home on foot after a night out with friends.

The Sean Morley Memorial Prize is an initiative of the road safety charity **AIRSO**. It is open to undergraduates of UK universities and rewards exceptional projects and dissertations which have a road safety theme. The prize aims to promote road safety by attracting talented graduates to the field. In addition, it is hoped that the prize will provide a mechanism through which those just beginning their careers can bring their ideas to the wider road safety community. Most importantly, however, the Sean Morley Memorial Prize celebrates the life of a remarkable young man, whose needless loss reminds us why continued efforts to make our roads safer are so important.

**This year's prizes were generously donated by Chevron Traffic Management Ltd, for whose support we are very grateful.**



For general enquiries about the award, please contact Dr Lucy Rackliff at Aston University: [L.rackliff@aston.ac.uk](mailto:L.rackliff@aston.ac.uk)

## The Winning Project

### Daniel Morris

#### **"Bayesian learning for road analysis"**

Daniel Morris graduated from the University of Surrey in June 2017 with a degree in Computer Science. He currently works for Microsoft as a Software Engineer in Oslo.

He is captivated by the study of machine learning and artificial intelligence, and how everyday people can leverage these



revolutionary technologies to make a difference to their daily lives.



### Research Abstract

Bayesian networks have been widely adopted as a reliable technique for determining the probability of an event given its constituent parts. Unlike most machine learning techniques, they can make predictions even in the case of missing data and as more information becomes available Bayesian networks can improve these predictions. For rigour, another machine learning technique was investigated in the context of road analysis.

Neural networks, were also considered in this project; they are often regarded as "black boxes" for most of the machine learning community. The difficulty in making sense of neural networks lies in the complex topology of the hidden layers. Although there have been works in the literature aimed at demystifying the way neural networks operate, making sense of the hidden layer remains a challenge.

This project addresses this challenge by deriving physical meaning from the hidden layer of a neural network. This is achieved by mapping it to the topology of a Bayesian network. Using this mapping, I enhance the probabilities of the Bayesian network resulting in a hybrid model that outperforms both the Bayesian and neural networks, improving the prediction model for road

accidents. This work demonstrates that a neural network can estimate the node probabilities of a Bayesian network if mapped accordingly.

The resulting Bayesian network is then used in a real-world prediction scenario to estimate the danger of given GPS routes from location to location in an Android based application. This App enables the user to select a route based on its estimated danger, rather than time needed to reach destination.

## Runner Up

### Tom Heywood

#### *"The effects of auxetic foam as a new liner material in crash helmets"*

Tom Heywood graduated from the University of Exeter in July 2017 with a 1st Class degree in Mechanical Engineering with Industrial Experience. He is currently working as a Graduate Mechanical Engineer at Cundall in their London Office. In his free time he is a keen sportsman playing rugby and squash and enjoys road cycling.

### Research Abstract

Crash helmets are essential in saving lives throughout the world. 80% of motorcycle fatalities in Europe are the result of severe head injuries. However wearing a helmet does reduce the chance of fatal injury during an accident by 44% [1]. Motorsport is no different; often a crash helmet has been the difference between life and death during an accident in Formula One. The design of crash helmets is often based upon conforming to various test standards rather than increasing safety for the wearer. There is a clear need to improve helmets to not only to increase safety but also to optimise their performance. This research examines the use of auxetic foams in place of conventional foam liners in crash helmets, aiming to

increase safety and optimise performance. There is no prior research into the use of auxetic foams in this field. During the work, a linear approach was employed building complexity in increments. A computational model was built and analysed. Initially a model block of foam was examined to represent a section of a crash helmet. Then a helmet model obtained from Dainese S.p.A. was computational tested, first under static simulation then under dynamic simulation, to mimic an impact situation. Simulation parameters were based upon standard test conditions and existing helmet impact research. A conventional foam with a Poisson's ratio of 0.05 and auxetic foams of Poisson's ratios of -0.5, -0.75, -0.99 were all simulated for each model configuration.



The results of the Finite Element Analysis (FEA) supported background theory finding that auxetic foam liners displayed reduced deformation, reduced stress and in dynamic simulations a reduced acceleration and Head Injury Criterion (HIC). An ideal region for the Poisson's ratio of the auxetic foam liners was found to lie between -0.5 and -0.75. Within this region the safest configuration is found with the lowest HIC, accelerations and stresses whilst displaying a low deformation depth.

It can be concluded from this study that auxetic foam liners do increase the safety of the helmet and display a significant reduction in deformation under equal impact conditions compared

to conventional foam liners. Auxetic foams could therefore be used to reduce weight in helmets and optimise their performance. Further research into physical testing and improved modelling and software would help to validate results.

## Runner up

### Katherine Lennard-Jones

*"Are cars truly designed for the population extremes?"*



Katherine Lennard-Jones graduated from Loughborough University in July 2017 with a 2:1 degree in Ergonomics (Human Factors Design) and a diploma in professional studies. She is currently working at Jaguar Land Rover as a Human Factors engineer. In the future she is hoping to continue to work within the automotive industry and the development of autonomy.

### Research Abstract

**Aims:** The first aim of this study is to determine if small and large vehicles are designed to accommodate people greater than 90th percentile and less than 10th percentile in stature. The second aim of the study is to assess driver safety to understand if vehicles are designed to be safe for drivers of extreme measurements.

**Methods:** Qualitative and quantitative methods were used with the main method being in car questionnaires.

Physical measurements were taken in the vehicle along with anthropometric measurements

**Results:** Graphical representation of the analysis shows trends seen within the data. However the sample size was too small to prove statistical significance. The analysis indicated that overall 10th percentile participants were more comfortable in the smaller vehicles and 90th percentiles more comfortable in the larger. The analysis also showed there was a slight trend in the data indicating females were more comfortable in all size vehicles but especially in the smaller vehicles; without significant correlation. Importantly, the data also raised some vehicle safety issues: firstly some participants sat too close to the wheel. Secondly in smaller vehicles where 90th percentiles had difficulty seeing out of the windscreen due to interference from the sun visor, thirdly 10th percentiles had difficulty with rear view visibility, this was a concern as they would not be able to see small objects e.g. a child if behind the car.

**Conclusions:** The research and analysis appeared to suggest no difference between 10th and 90th percentile comfort and vehicle size; but it indicated:

- 1) 10th percentile were more comfortable and catered for in all size vehicles than 90th percentiles
- 2) 10th Percentile users sit very close to the steering wheel, - 3 in 10 participants sat on or just below the recommended distance.
- 3) 90th percentile participants found locomotion difficult in the smaller vehicles
- 4) Females were more comfortable than males across the range of vehicles – evidenced by males dwelling more on negatives.

Although the data could not be analysed statistically, this does not suggest a lack of importance. However to gain better understanding an in depth study with a larger sample is needed.

## Shortlisted finalists

### Anna Withey

*"A comparison of graphic symbols and supplementary text on the comprehension of road traffic signage"*

Anna graduated from the University of Bath in July 2017 with an undergraduate BSc with honours in Psychology. She is currently taking a year away from education with the hope of doing a Graphic Design course to combine with her psychological studies. She is interested in improving product designs and advertising campaigns by using her knowledge of the way people think and perceive the world from her degree studies.



## Ahmad Aqil Bin Mohamed Ali

*"Improving bicycle safety in busy cities"*

Ahmad Aqil Bin Mohamed Ali is currently in the 4th year MEng Mechanical Engineering at University College London (UCL). He is from Malaysia and currently a holder of Public Service Department of Malaysia Sponsorship (JPA).



## Tricia McKinley



*"Voice command text messaging: An investigation into observational driver distraction"*

Trish McKinley graduated with a first class honors degree in BSc Criminology and Forensic Investigation from University Centre of Southend and Thurrock in September 2016. Trish is currently working full time at Barclays bank while studying MSc Terrorism Studies at University of East London with the aim to specialise in counter terrorism financing.

## Cameron McIntyre

Unfortunately Cameron was unable to attend the event. Please contact him directly if you would like to learn more about his work.

*"The effect of spoken feedback on the development of trust between the driver and an autonomous (level 4) vehicle"*

"Hi, I'm Cameron and thank you so much for taking the time to read about my project! I am a recent graduate Loughborough University, attaining a 2:1 BSc Ergonomics (Human Factors Design). The project I chose for my dissertation came about partly through inspiration from my course but also from the captivating prospect of working with autonomous vehicles and having an impact on a truly exciting real-world project. Moving on from university, I have now become a User Experience Designer in London, which has been a goal of mine for many years now. I believe that the experience and knowledge gained from my course and this

project have given me a unique skillset in my industry, especially when it comes to User Research.

I am always looking to develop my career and better myself as a researcher and designer, so I hope to find more opportunities like this project, which enable me to have an impact on people's lives and shape a better future through design."

The email address you can use is [cam.mcintyre@outlook.com](mailto:cam.mcintyre@outlook.com)

## For more information

If you would like to receive information about next year's award, or about AIRSO membership, email [info@airso.org.uk](mailto:info@airso.org.uk) or [l.rackliff@aston.ac.uk](mailto:l.rackliff@aston.ac.uk)

Full details of all submissions will appear on the AIRSO website in the New Year.

Event photographs by:  
**Mykal Riley, UCL**



## NETWORKING

### Items for the DIARY

Public Policy Exchange  
[conferences@publicpolicyexchange.co.uk](mailto:conferences@publicpolicyexchange.co.uk)

#### Protecting Wildlife on Local Highways

Safeguarding Wildlife  
Habitats alongside the  
Strategic Road Network

Central London

Thursday 17<sup>th</sup> May 2018

#### Building an Innovative, Customer-Focussed Public Transport Network: Developing Integrated Services that Support Local Growth

Central London

Wednesday 11<sup>th</sup> April 2018

**David Sidebottom**

Director

Transport Focus

**Stephen Joseph OBE**

#### DVLA opening hours: Christmas and New Year 2017

\* Opening times for DVLA's contact centre over Christmas and the New Year. \*

Customers will be able to use our online services throughout the Christmas and New Year period.

Friday 22 December 8am to midday (drivers premium line will be open until 4pm)

Saturday 23 December 8am to 2pm

Christmas Eve closed

Christmas Day closed

Boxing Day closed

Wednesday 27 December 8am to 5.30pm

Thursday 28 December 8am to 5.30pm

Friday 29 December 8am to 5.30pm

Saturday 30 December 8am to 2pm

New Year's Eve closed

New Year's Day closed

Tuesday 2 January 8am to 7pm

## FROM THE SECRETARY

Firstly I would like to thank all members of the association who have welcomed me to this role. I look forward to working with and supporting you all in the future.

#### Just some housekeeping.

1. I will be updating the website early in the New Year and seek any feedback that would benefit the association.
2. I earnestly encourage members to assist me with developing future events across the UK. If you are prepared to host a networking event please contact me. The Council would like the Association

to promote more events to ensure **YOU** as members are benefiting and maximising your membership.

3. **Annual subscriptions** are due in January. Can I take this opportunity to thank those who contribute to AIRSO and ultimately road safety? I must stress the importance to those who pay by direct debit, can you please ensure the correct mandate is prepared for £50. In some cases members have not amended historic standing orders to the correct sum.
4. The **AGM** is fast approaching, don't miss out on this networking opportunity. The council want you to contribute to the future development of the association so being there can make a difference for **2018**.

#### Festive season.

During this period I will be in the office on:-

27<sup>th</sup> December 2017: 0900-1700

28<sup>th</sup> December 2017: 0900-1700

29<sup>th</sup> December 2017: 0900-1700

30<sup>th</sup> December 2017: 0900-1700

2<sup>nd</sup> January 2018 : 0900-1700

Nothing now remains but for me to wish you all a very safe and happy festive season.

**Nadolig llawen a blwyddyn newydd dda**



# Newsletter

Dec 2017



Working for Safety on the Road

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[www.airso.org.uk](http://www.airso.org.uk)

Registered Charity No 1054640

***Registered Office: Association of Industrial Road Safety Officers, Hadley Park  
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