

# Tyneside tech firm building artificial intelligence 'night watchman' to make train journeys safer

Late night train journeys could get a lot safer thanks to the work of a Tyneside technology company.

Gateshead-based Word Nerds has secured around £30,000 in Government funding to create an artificial intelligence (AI) "night watchman" that can read passenger social media posts and discretely alert train guards where help is needed.

The linguist analytics specialist is building and training the AI as part of the Government's Transport Research and Innovation Grant (TRIG) programme – which aims to spur bold, early stage ideas to improve transport in the UK.

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Word Nerds' technology is based on "natural language processing" – the analysis of everyday language using AI and linguistics to make sense of text data, in this case from social media.

Steve Erdal, Word Nerds chief scientific officer, said: "Public transport operators such as train and bus companies need to build confidence in the public in order to encourage them to travel. They can only do that by understanding and responding to passengers that are travelling with them.



Word Nerds' chief scientific officer Steve Erdal (left) with CEO Pete Daykin.

(Image: Supplied by Steve Erdal)

"A lot of them are starting to see there's problems with that. Firstly, they often see the times when people feel most uncomfortable travelling are the very times when there are the fewest support networks available.

"For example, when it's late at night or outside of office hours, that's when people can find themselves in vulnerable situations or subject to antisocial behaviour. That's when frontline social media staff aren't around. Those people can phone the British Transport Police but that's a big step to take.

He added: "It can be really difficult to alert people on the train to these things – or at least inconspicuously do that. The idea is the system would spot something concerning, it would alert an out-of-hours person who would then get in touch with the driver or the train manager to investigate and sort out the issue."

Mr Erdal says the idea of AI as tool to combat anti social behaviour and keep passengers safe is catching on with transport operators thanks to its ability to sift large volumes of text from social media.

However, due to inherit biases in what people write, AI tools have also typically been biased. That can be dangerous in this instance where prejudices – for example those associated with different ethnicities – could lead discriminatory action.

Word Nerds' Tyneside-based team, with support from Durham University, is using real social media posts to develop the prototype program which will be six months in the making.

Mr Erdal said: "We're trying to minimise bias within AI. We're also training it specifically on passenger data – and really specifically rail – which hasn't been done before.

"We're working very closely with the rail operators to get a sense of what's useful to them, and they're helping us understand how to break the data up.

"We've got really good infrastructure for this sort of thing so we're hoping to be able to roll it out quite quickly."

The project is one of 51 funded by the TRIG programme, which is delivered in partnership with the Connected Places Catapult, and features other companies developing a range of ideas from autonomous flood protection system to technologies for the world's first liquid hydrogen fuel container facility for zero emission ships.

Transport Minister Trudy Harrison said: "Innovation funded as part of TRIG could be the key to unlocking a more efficient and safer transport system for tomorrow.

"I support the ingenious ideas of this year's cohort every step of the way and wish the successful applicants all the very best. I look forward to seeing the ideas develop to boost

our green agenda and create high-skilled jobs across the UK.”

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