# Geographical Depiction of known XR use by Police in the UK

#### **Northumbria Police**

Developed VR games using head-mounted displays to assist the public in identifying vulnerable people in different contexts

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#### **Greater Manchester Police (GMP)**

Introduced a VR training pilot to help officers understand and empathise with hate crime victims<sup>4</sup>

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#### Derbyshire Constabulary

Trialled a taser training application<sup>2</sup>

#### **West Midlands Police**

Developed a house simulation, interactive carpark and VR film to education the public on crime prevention<sup>13</sup>

12

#### **Norfolk Fire and Rescue**

Created a 360-degree "simulated car crash experience" to educate drivers about road safety<sup>8</sup>

**West Mercia** 

Developed a VR mobile application for 17-25 year olds on road safety and peer pressure<sup>12</sup> **Warwickshire Police** 

Launched a project using individual headsets to show a 360 degree film with young people to discuss around underage drinking and personal safety<sup>11</sup>

#### **South Wales Police**

Developed several VR scenarios to familiarise officers with different contexts (custody, house entry and tactical pursuits)<sup>10</sup>

**Gwent Police** 

Used a 280 degree screen to create fully immersive training for police officers on how to deal with domestic abuse cases<sup>5</sup>

#### **Essex Police**

Trialled a VR system for firearms training, including through a free-roam exercise<sup>3</sup>

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#### Metropolitan Police Service

Use VR training for domestic violence response,<sup>6</sup> terrorism awareness, investigative skills, racial bias awareness and drone familiarisation<sup>7</sup>

Devon and Cornwall Police

Investigating CSI training application<sup>1</sup>

## First RespondXR

## Digital vulnerability of immersive training for first responders

## Our Research

In their role as first responders, police services in England provide immediate assistance to individuals at a scene of emergency and/or potential criminal event. However, the significant reduction in policing resources since 2010 has demanded officers to work more broadly in response to the diverse range of incidents. Therefore, training needs and settings must be not only varied, but efficient as well as effective.

Extended Reality (XR), including both virtual and augmented reality, is becoming prominent in many sectors for training and operations. Yet, in the rush to exploit the benefits of XR for immersive training, the potential digital vulnerabilities that may be exposed have yet to be properly examined.

First RespondXR is a research project funded by SPRITE+ which, for the first time, mapped the vulnerability space (i.e., its social, technical, legal, ethical risks and impacts), from the perspective of (a) those delivering the training, (b) the first responders who will be undertaking this training, and (c) the technical teams bringing forward new training methodologies in XR. The project explores the socio-technical challenges posed by the adoption of this technology, providing the foundations for further research on the safe, secure, and ethical use of immersive training technology for enhancing the response of policing in England.

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**Our Team** 

### 1 Open Innovation Team, 'Virtual Reality in Police Training: Rapid Review', 2022.

2 BBC Click, AVRT BBC Click Episode, YouTube, 2021

- <a href="https://www.youtube.com/watch?v=59B5Z0rTBDU&ab\_channel=AVRTTraining">https://www.youtube.com/watch?v=59B5Z0rTBDU&ab\_channel=AVRTTraining>;</a>; Mark Dugdale, 'AVRT Platform Takes Training to a Whole New Level', Virtual Reality World Tech, 19 August 2020
- <a href="https://vrworldtech.com/2020/08/19/avrt-platform-takes-training-to-a-whole-new">https://vrworldtech.com/2020/08/19/avrt-platform-takes-training-to-a-whole-new</a> -level/>; Derbyshire Constabulary, 'Derbyshire Police Trialling Cutting Edge Virtual Reality Training Tool' (Derbyshire Constabulary, 2020)
- <a href="https://www.derbyshire.police.uk/news/derbyshire/news/news/forcewide/2020/au">https://www.derbyshire.police.uk/news/derbyshire/news/news/forcewide/2020/au</a> gust/derbyshire-police-trialling-cutting-edge-virtual-reality-training-tool/>
- 3 'AVRT Set up Possibly the Largest Free-Roam VR Training System in the UK' (AVRT, 10Open Innovation Team. <a href="https://avrt.training/avrt-set-up-possibly-the-largest-free-roam-vr-training-system">https://avrt.training/avrt-set-up-possibly-the-largest-free-roam-vr-training-system</a>
- 4 Josie Le Vay, 'We Tried on the VR Goggles Manchester Police Are Using to Train 2,000 Officers in Tackling Hate Crime', Manchester Evening News, 18 August 2021 <a href="https://www.manchestereveningnews.co.uk/news/greater-manchester-news/tried">https://www.manchestereveningnews.co.uk/news/greater-manchester-news/tried</a> -vr-goggles-manchester-police-21335451>; 'Greater Manchester Police Officers given Virtual Reality Training around Hate Crime', ITV News, 18 August 2021 <a href="https://www.itv.com/news/granada/2021-08-18/gmp-officers-to-virtual-reality-train-reality-t
- o 'Police Use Virtual Reality to Help Tackle Domestic Abuse', BBC News, 19 February 2018 <a href="https://www.bbc.co.uk/news/av/uk-wales-43121253">https://www.bbc.co.uk/news/av/uk-wales-43121253</a>; 'UK Police Force Launches The First Virtual Reality Training Program' (AR Post, 2018) <a href="https://web.archive.org/web/20210505211618/https://arpost.co/2018/03/08/uk-p">https://web.archive.org/web/20210505211618/https://arpost.co/2018/03/08/uk-p</a> olice-force-launches-first-virtual-reality-training-program/>
- 6 Antser, 'Antser Partners with Met Police to Increase Responsiveness to Domestic Abuse Incidents through the Use of Innovative VR Technology', 2021 <a href="https://www.antser.com/antser-partners-with-met-police-to-increase-responsiven">https://www.antser.com/antser-partners-with-met-police-to-increase-responsiven</a> ess-to-domestic-abuse-incidents-through-the-use-of-innovative-vr-technology/>;
- <a href="https://www.policeprofessional.com/feature/virtual-insight-into-domestic-abuse/">https://www.policeprofessional.com/feature/virtual-insight-into-domestic-abuse/</a>
- Open Innovation Team.

### **Citations**

- 8 Paul Jacques, 'Virtual Reality Drives Home Crash Consequences', Police Professional, 12 July 2017 <a href="https://www.policeprofessional.com/news/virtual-reality-drives-home-%C2%91cr">https://www.policeprofessional.com/news/virtual-reality-drives-home-%C2%91cr</a>
- 9 'Force to Use State-of-the-Art Technology to Teach Public about Vulnerability'
- (Northumbria Police, 2019) <a href="https://beta.northumbria.police.uk/latest-news/2019/august/force-to-use-state-of">https://beta.northumbria.police.uk/latest-news/2019/august/force-to-use-state-of</a> -the-art-technology-to-teach-public-about-vulnerability/>; 'It Could Be Important' (Pocket Sized Hands, 2019)
- <a href="https://pocketsizedhands.com/our-work/itcouldbeimportant/">https://pocketsizedhands.com/our-work/itcouldbeimportant/>.</a>

- 11Warwickshire Police, 'New Virtual Reality Headsets Launched to Help Young People Understand Issues Affecting Them' (Warwickshire Police, 2020) <a href="https://www.warwickshire.police.uk/news/warwickshire/news/2020/march/new-v">https://www.warwickshire.police.uk/news/warwickshire/news/2020/march/new-v</a> rtual-reality-headsets-launched-to-help-young-people-understand-issues-affecting
- 12'Green Light Safety App (Drive VR)' (The Road Safety Trust) <a href="https://www.roadsafetytrust.org.uk/projects-option-2/west-mercia-police">https://www.roadsafetytrust.org.uk/projects-option-2/west-mercia-police</a>;
- 13 Mark Dugdale, 'VR Proves Impactful in Educating Young People about Dangers of Knife Crime', Virtual Reality World Tech, 19 July 202
  - out-dangers-of-knife-crime/>; Taylor Rooke, 'West Midlands Police Using Virtual Reality to Tackle Gang Violence', Birmingham Updates, 21 September 2020
  - <a href="https://www.birminghamupdates.com/west-midlands-police-using-virtual-reality-to-tacklee-gang-violence/>; 'Interactive Car Park Helps Combat Vehicle Crime' (West Midlands
  - <a href="https://west-midlands.police.uk/news/interactive-car-park-helps-combat-vehicle-crime">https://west-midlands.police.uk/news/interactive-car-park-helps-combat-vehicle-crime</a> 'House Discloses Crime Prevention Tips as Part of West Midlands Police Anti-Burglary Campaign' (Secured By Design, 2019
  - <a href="https://www.securedbydesign.com/about-us/news/house-discloses-crime-prevention-tip-">https://www.securedbydesign.com/about-us/news/house-discloses-crime-prevention-tip-</a> s-as-part-of-west-midlands-police-anti-burglary-campaign>; Kelly Harris, 'Virtual Reality Crime Scene Launched to Help Residents Beat Burglars', Dudley News, 1 October 2018 <https://www.dudleynews.co.uk/news/16952737.virtual-reality-crime-scene-launched-helicality-scene-launched-helicality-scene-launched-helicality-scene-launched-helicality-helicality-scene-launched-helicality-scene-launched-helicality-scene-launched-hel p-residents-beat-burglars/>.











