

Mark McGill

SENIOR LECTURER · EXPERT IN HUMAN-COMPUTER INTERACTION, VR/AR/MR

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I'm a Senior Lecturer (appointed Jan 2021, PhD received summer 2016) based in the **Glasgow Interactive Systems Group (GIST)**, within the **School of Computing Science (SoCS)** in the **University of Glasgow**. My focus is on Human-Computer Interaction, specifically around the **transformational capacity of everyday, ubiquitous XR** technology (and associated sensing) to impact society - from risks to privacy, persuasion, and safety; to benefits around productivity (e.g. ergonomics) and entertainment (e.g. for passengers as Co-I on the €2.5 million ERC ViAJeRo project), extending sensory reach, augmented perception etc.

I have over **50 publications**, including over 20 at ACM CHI (the top HCI conference, **2 Honourable Mention awards**, including 4 ACM CHI full papers in 2023 alone), 3 at ToCHI (the top HCI journal), and 2 at ACM IMWUT (the top Ubiquitous Computing journal). As evidenced by my co-authors' affiliations, many of these accomplishments resulted from collaborations with scholars in Germany, UK, USA and France. My collaborations have received £520,000 in funding - from research councils (e.g. EPSRC), research networks (e.g. REPHRAIN, SPRITE+), and industry (e.g. Logitech, Meta/Facebook), whilst as PI I now lead **AUGSOC**, an ERC Starter Grant selected for funding and ultimately funded by UKRI due to the UK's lack of association with Horizon at the time.

I have been a member on a number of program committees, including ACM CHI, UIST, IMX, MUM, NordiCHI, PerDis and more, and have been an organiser of three workshops at CHI around societal challenges posed by XR, as well as General Chair for Augmented Humans 2023, brought to Glasgow for the first time.

Recent Funding

Dec 2024	REPHRAIN - National Research Centre on Privacy, Harm Reduction and Adversarial Influence Online , Lead, DAARC: Design Against Augmented Reality Crime	£51000
2024	ERC Starter Grant / UKRI Horizon Guarantee , PI, AUGSOC - Bringing the Augmented Society to Reality: Shaping Perception, Resilience and Rights for Everyday Augmented Reality	£1.3 million (£1.7 million GU FEC)
2023	REPHRAIN - National Research Centre on Privacy, Harm Reduction and Adversarial Influence Online , Co-I, MetaSafeChild: Assessing Child Safety in the Metaverse and Developing Safety-Enhancing Technologies	£80000
2023	College of Science and Engineering, UoG , CoSE Capital Equipment Call for motion platform	£2500
2022	Meta Reality Labs , Deceptive designs in Extended Reality	£80000
2021	REPHRAIN - National Research Centre on Privacy, Harm Reduction and Adversarial Influence Online , PI, PriXR: protecting XR User and Bystander Privacy	£80000
2021	SPRITE+ - The Security, Privacy, Identity and Trust Engagement NetworkPlus , First RespondXR: Digital vulnerability of immersive training for first responders.	£29341
2021	EPSRC IAA , Novel Interactions for Mixed Reality (w/ Logitech as partner).	£40000
2021	Facebook/Meta Reality Labs , Research Fund award looking at safeguarding adolescents in Social VR. Has lead to a co-funded PhD student with Social AI CDT starting summer 2022.	\$75000
2020	University of Sydney - Glasgow Partnership Collaboration Award , Funding for collaboration on VR motion sickness (w/ Frank Pollick, Frans Verstraten)	£7,594

Esteem

Paper Reviewing, Received 25 special recognitions (CHI, DIS, TVX, UIST, Mobile HCI, Automotive UI) having reviewed 160+ papers across major ACM/IEEE venues and others, including: *CHI, MobileHCI, ICMI, VRST, DIS, TVX/IMX, UIST, AutoUI, IEEE VR, IMWUT, Teleoperators & Presence, SIGGRAPH Asia, NordiCHI, TEI, ISMAR, Computer & Graphics, IJHCS, Springer Nature, Cognitive Computation*.

AC / Committee Member, CHI 2020 Student Research Competition; PerDis 2020 PC; MMVR 2021 PC; UIST 2021/2022 PC; NordiCHI 2022 PC, MUM 2023 PC, CHI 2025 PC.

Chair Roles, General Chair, *Augmented Humans* (AHS) 2023, which brought 140 international attendees to the conference, held in Glasgow for the first time at the Advanced Research Center.

Funding Panels, Reviewed for: Engineering and Physical Sciences Research Council (EPSRC); internal EPSRC Impact Accelerator Awards; and ERC CHANSE, Collaboration of Humanities and Social Sciences in Europe.

Awards

Best Paper Awards, I have received 11 paper awards so far, including: **ISMAR 2024 2*** Best Paper Nominations; **ACM SUI 2024** Best Paper; **ACM IMX 2024** Best Paper; **ACM CHI 2023** Best Paper Honourable Mention; **ACM IMX 2022** Best Paper Honourable Mention; **ISMAR 2021** Best Paper Honourable Mention; **IEEE AIVR 2020** Best Paper Nomination; **ACM IMX 2020** Best Paper (WIP); **ACM CHI 2017** Best Paper Honourable Mention; **ACM TVX 2014** Best Paper.

2022 **People Make Research: Career**, Recognised by CoSE for supporting colleagues career progression.

2021 **College of Science and Engineering 'Reward for Excellence'**, For quality of proposal submission (£6,500).

Recent Invited Talks / Interviews

2023	Future Privacy Forum , Invited talk on Augmented Reality Privacy based on our REPHRAIN research.	Online
2023	Metaverse APPG , Invited as part of REPHRAIN to present to Metaverse/Web3.0 All Party Parliamentary Group	House of Lords
2022	REPHRAIN Policy Salon on the Metaverse , Invited as part of REPHRAIN to present to invited policy stakeholders, including Ofcom, ICO and more, on Metaverse challenges.	Online
2022	#1091 - IEEE XR Ethics: The Erosion of Privacy & Anonymity , Invited interview on highly influential 'Voices of VR' Podcast with Kent Bye	Online
2022	Augmented Reality: Ethics, Perception and Metaphysics Workshop , Invited talk on 'Everyday XR: From Productivity to Privacy'	Online
2021	University of Michigan , Invited talk to Michael Nebelings course on XR, 'Everyday XR: Productivity, Passengers and Privacy'	Online
2021	CRE-MSD series -Supporting Remote Office Work and Pivoting Back to the Workplace during a Pandemic , Invited talk on XR productivity and ergonomics	Online
2021	Office Ergonomics Research Committee (OERC) Mini Marconi , Invited talk on XR ergonomics	Online
2021	LMU, Munich , Invited talk on passenger experiences of XR.	Online
2020	BBC R&D , Invited talk on Auditory Mixed Reality to Interactive Experiences group.	Online
2020	Waterkant Festival 2020 (recording link) , Talk on "Future Mixed Realities" as part of VR track of festival.	Online
2020	Social VR CHI 2020 Workshop , Short talk on "Shared and Synchronous Mixed Reality Experiences"	Online
2019	Logitech Design Lab , Talk on 6DoF pen interactions and benchmarking	Cork, Ireland

Teaching

2024- **Extended Reality Interactions**, Co-Lead, Masters level undergraduate course on extended reality research and development, ~60 students.

2021-24 **MSc IT+ Projects Coordinator**, Managing the individual projects for MSc IT+ programme - accounts for approximately 1/3 of their 1 year degree, with cohort sizes between ~100-200 students.

2021-24 **Mobile HCI for MSc (~80 students)**, Masters course on HCI with a focus on mobility scenarios, covering topics such as ubiquitous computing, XR, prototyping etc.

2021-24 **Professional Software Development / Team Projects**, Supervise 10 teams (~50 students) a year conducting year-long software engineering development projects with real clients.

Supervision

Research Associates / Assistants, Manage 3 PDRAs in the school: *Graham Wilson* (AUGSOC); *Thomas Goodge* (DAARC); *Shaun MacDonald* (EPSRC IAA)

PhD Students, Supervise 7 PhD students: *Zhanyan Qiu* (2021-, resolving motion sickness using XR visual cues); *Melvin Abraham* (2021-, privacy and security in XR); *Cristina Fiani* (2022-, parental moderation of adolescent social XR, part-funded by Meta); *Kieran Waugh* (2021-, non-contact mid-air interactions); *Iain Christie*, (2023-, passenger XR). *Orlaith Choo and Zayne Kadry* (2024-, AUGSOC)

Undergraduate and Masters Students, Supervised 30+ students across individual projects.

Select Publications

See [Google Scholar](#) for a complete listing of publications. *h-index*: 25, *Citations*: 1993; *Citations in last 5 years*: 2196 as of November 2024.

- 2024 **Don't Record My Private pARts: Understanding The Role of Sensitive Contexts and Privacy Perceptions in Influencing Attitudes Towards Everyday Augmented Reality Sensor Usage** , Melvin Abraham, Mohamed Khamis, Mark McGill Output from AUGSOC examining the risks posed by everyday AR sensing capabilities and public concerns raised. ISMAR
- 2024 **From Redirected Navigation to Forced Attention: Uncovering Manipulative and Deceptive Designs in Augmented Reality through Retail Shopping** , Martina Ruocco, Pejman Saeghe, Frederic Kerber, Jan Gugenheimer, Mark McGill, Mohamed Khamis Paper uncovered novel deceptive designs that could only be enacted through wearable augmented reality, and could manipulate shopper attention, behaviour and navigation. Received a Best Paper Nomination. ISMAR
- 2024 **What You Experience is What We Collect: User Experience Based Fine-Grained Permissions for Everyday Augmented Reality** , Melvin Abraham, Mark McGill, Mohamed Khamis Proposed novel permission system to address escalated risk posed by AR sensing. ACM CHI
- 2024 **What makes XR dark? Examining emerging dark patterns in augmented and virtual reality through expert co-design** , Veronika Krauss, Pejman Saeghe, Alexander Boden, Mohamed Khamis, Mark McGill, Jan Gugenheimer, Michael Nebeling Novel and first taxonomy examining how AR might uniquely unlock or amplify capabilities around deceptive design. ACM ToCHI
- 2023 **Augmenting people, places & media: The societal harms posed by everyday augmented reality, and the case for perceptual human rights** , Joseph O'Hagan, Jan Gugenheimer, Jolie Bonner, Florian Mathis, Mark McGill Proposes the need for perceptual human rights to address vulnerabilities of everyday augmented reality. Also shared via IEEE Security and Privacy article. MUM and IEEE S&P
- 2023 **When filters escape the smartphone: Exploring acceptance and concerns regarding augmented expression of social identity for everyday AR** , Jolie Bonner, Florian Mathis, Joseph O'Hagan, Mark McGill Examines the risks posed when AR is used to alter our perception of ourselves and others. ACM VRST
- 2023 **Memory manipulations in extended reality** , Elise Bonnail, Wen-Jie Tseng, Mark McGill, Eric Lecolinet, Samuel Huron, Jan Gugenheimer Explores how XR can uniquely impact or interfere with human memory at encoding, pre-retrieval and retrieval. Received an Honourable Mention award. ACM CHI
- 2023 **Privacy-Enhancing Technology and Everyday Augmented Reality: Understanding Bystanders' Varying Needs for Awareness and Consent** , Joseph O'Hagan, Pehman Saeghe, Jan Gugenheimer, Daniel Medeiros, Karola Marky, Mohamed Khamis, Mark McGill Output from our REPHRAIN project, exploring public perception of AR capabilities, and outlining need for PETs that support bystander awareness and consent. ACM IMWUT
- 2022 **The Dark Side of Perceptual Manipulations in Virtual Reality** , Wen-Jie Tseng, Elise Bonnail, Mark McGill, Mohamed Khamis, Eric Lecolinet, Samuel Huron, Jan Gugenheimer First definition and demonstration of how widely used perceptual manipulations (e.g. translational gain, redirected haptics) can be exploited. ACM CHI
- 2022 **Novel Challenges of Safety, Security and Privacy in Extended Reality** , Jan Gugenheimer, Wen-Jie Tseng, Abraham Hani Mhaidli, Jan Ole Rixen, Mark McGill, Michael Nebeling, Mohamed Khamis, Florian Schaub, Sanchari Das First CHI workshop exploring safety, privacy and harm at ACM CHI - see <https://wenjietseng.com/sspxr/> for more details and submissions. ACM CHI
- 2022 **Extended Reality (XR) and the Erosion of Anonymity and Privacy** , Mark McGill Output from collaboration with IEEE ethics initiative, outlines a number of significant challenges in everyday XR privacy. IEEE Global Initiative on Ethics of XR Report
- 2021 **Safety, Power Imbalances, Ethics and Proxy Sex: Surveying In-The-Wild Interactions Between VR Users and Bystanders** , Joseph O'Hagan, Julie R. Williamson, Mark McGill, Mohamed Khamis Analysis of story survey that revealed new insights into problematic and risky behaviours around XR, exposing users and bystanders to new harms. Received an Honourable Mention. ISMAR
- 2019 **Exploring Potentially Abusive Ethical, Social and Political Implications of Mixed Reality Research in HCI** , Jan Gugenheimer, Mark McGill, Christian Mai, Samuel Huron, Julie Williamson, Michael Nebeling. First workshop at CHI on this topic. The ethical challenges introduced by consumer adoption of MR headsets and devices are huge, and this workshop served to bring together some stakeholders at CHI on an important topic. ACM CHI
- 2019 **Challenges Using Head-Mounted Displays in Shared and Social Spaces** , Jan Gugenheimer, Christian Mai, Mark McGill, Julie Williamson, Frank Steinicke, and Ken Perlin. First workshop at CHI on this topic. ACM CHI
- 2018 **Violent video games in virtual reality: Re-evaluating the impact and rating of interactive experiences** , Graham Wilson, Mark McGill Highly prescient paper on the future pitfalls of VR gaming. ACM CHIPLAY