Becky Spittle

Microsoft PhD Research Fellow, Doctoral Researcher, Digital Media Technology (DMT) Lab, Birmingham City University, UK

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PERSONAL PROFILE

Driven researcher specializing in Human-Computer Interaction who thrives on applying logical thinking and methodical approaches to solve real-world problems. My expertise spans user experience (UX), interaction design, extended reality (XR), accessibility, and audio, providing a diverse skill set that is well-suited for the dynamic nature of industry research. Inspired by the potential of advanced and XR technologies, I am committed to leveraging these tools to create personalized, intuitive, and inclusive interactive experiences. With a strong publication record and experience leading successful projects, I have proven my ability to produce high-quality, impactful work. Seeking opportunities to innovate, collaborate, and build on professional experience.

EDUCATION

Sep. 2020 – Present

PhD in Computing and Digital Technology (Human-Computer-Interaction)
Birmingham City University, West Midlands, UK

Thesis Title: "*Maximising the Transferability of Interaction Techniques for Immersive Technologies*" – Completion expected 2024

- Exploring how to make XR interactions more adaptive and personalized - considering the affordances of different input techniques (eye gaze, head gaze, freehand gesture, speech) in a range of situations and use cases.
- Considering how AI/ML could be used to help explain and interpret the requirements of individual users, to provide more seamless interactive experiences tailored to their context and needs.
- Proposing that context could be defined and understood through dimensions of proxemic interaction (Distance, Orientation, Movement, Identity, Location).

Jan. 2024 –

SEDA Introduction to Learning and Teaching in Higher Education
Birmingham City University, West Midlands, UK

Sep. 2020 – Jan. 2021

Postgraduate Certificate (PGCert) in Research Practice: Distinction
Birmingham City University, West Midlands, UK

Sep. 2019 – Sep. 2020

MSc in User Experience Design: Distinction
Birmingham City University, West Midlands, UK

- **Human-Centred Design**: Gained strong understanding of user-centred design tools, prototyping, processes and design thinking strategies.
- **Accessibility and Assistive Technology**: Attained deep knowledge around the types of impairments/disabilities influencing how users experience digital technologies (physical, visual, cognitive, and auditory), the wide range of assistive tools used, and the impact this has on design.
- **Research Methods and Evaluation**: Developed higher level research skills to define methods for research, translate technical theory to a reasoned test methodology, interpret results and communicate findings.
- **Advanced and Immersive Technologies**: Acquired in-depth understanding around how to design for novel interfaces, sensors and display systems - explored advanced interaction methods and the design considerations that such systems propose.
- **UX Development**: Developed knowledge around development technologies, methodologies and skills to create effective front-end user experiences.
- **Visual Interface Design**: Gained fundamental knowledge and skills to conceive, develop, and present compelling visual solutions for interactive digital products.

Sep. 2016 – Jun. 2019

BSc in Music Technology: First Class with Honours
Birmingham City University, West Midlands, UK

Apr. 2023 – Jul. 2023

Research Internship at Microsoft Research
Collaborative Intelligence, BREW (Blended Reality for Effective Workflows), MSR Cambridge, Cambridge UK
- Managing two research studies exploring hybrid meeting system prototypes for improving the inclusion of remote participants - working towards future developments of Microsoft Teams
- Supporting with research planning, logistics, participant recruitment, liaison, data collection, analysis and write-up. This resulted in two strong research outputs: CHI LBW (P1) and full CSCW paper (P2)
- Continuing collaboration with Microsoft researchers across MSR Cambridge and Redmond labs to effectively present and communicate research findings – outputs have been disseminated to wider groups at MSR, which has directly informed their research directions

Sep. 2020 - Present

Doctoral Researcher
DMT Lab, Birmingham City University, West Midlands, UK
- Working alongside colleagues to develop high quality research outputs and attain research funding
- Attending regular meetings to ensure effective communication and research progress
- Conducting thorough, state of the art literature reviews surrounding AR/VR, user experience, usability, user studies, and input approaches
- Designing, developing, and implementing large-scale user studies and recording/reporting on results
- Using Unity (C#) and MRTK2 for developing interactive environments and capturing structured data
- Employing strong interpersonal and time keeping skills to strictly follow detailed study protocols
- Conducting mixed-methods analysis using a range of software (e.g. R studio, Python, SPSS, Excel)
- Peer Reviewing (Computing Surveys 2024, CHI 2024 - special recognition for outstanding review, VRST 2023, IMX 2022, ISMAR 2021-2023)
- Student volunteer at ISMAR 2021

Jan. 2021 - Present

Teaching: Visiting Lecturer/Demonstrator in Computing and Digital Media Technology
School of Computing and Digital Technology, Birmingham City University, West Midlands, UK
MSc User Experience Design
- *Advanced and Immersive Technologies*
  - Helping students to develop core understanding of how to design for novel interfaces, sensors and display systems and explore advanced interaction methods using such technologies (e.g. AR/VR, IoT, gaze tracking, mid-air gesturing)
  - Inspiring students through delivering live demonstrations of technologies and providing them with hands-on experiences (e.g. with Meta Quest, HoloLens, Tobii, UltraLeap)
  - Highlighting the unique opportunities and design challenges presented by advanced/immersive technologies (e.g. spatial computing, standardisation/guidelines, interaction, sensor tolerances)
  - Introducing XR research processes, including need-finding/brainstorming, storyboarding/prototyping, development/deployment (WebXR, Unity/Unreal, SDKs), and testing/analytics
- *UX Development*
  - Introducing students to fundamental skills and technologies involved in UX development, guiding them to make informed decisions and provide effective interface components/interaction flows
  - Facilitating students to appraise different front-end development platforms, frameworks and libraries (e.g. Bootstrap, Vue.js, and React.js) for the development of cross-platform interactive experiences
  - Demonstrating how to critically evaluate existing development solutions for interactive systems and user interfaces (i.e. through inspector window, web extensions and plug-ins)
  - Helping students during lab sessions to apply front-end scripting frameworks and languages (HTML, CSS, JavaScript)
- *Research Methods*
  - Supporting students to develop and implement higher-level research skills, enabling them to translate technical and industry-standard theories into well-reasoned testing methodologies
  - Illustrating how to critically appraise the validity/reliability of research papers by analysing research methods and results (e.g. dependent/independent variables, counterbalancing)
  - Guiding students on how to write impactful literature reviews and communicate research methods with strong theoretical and technical positioning
  - Demonstrating how to use statistical software (e.g. SPSS) to employ relevant tests (based on statistical assumptions/data types) and interpret/report on quantitative and qualitative results

BSc Computer Science
- *User Experience Design*
    - Enabling students to understand how to design and create interactive prototypes (e.g. using Figma) through applying user-centred design principles
    - Introducing theoretical concepts around UX design alongside industry-standard hands-on approaches to create effective interactive experiences (e.g. Personas, Scenarios, User Requirements, Hierarchical Task Analysis (HTAs), Paper Prototyping, Digital Wireframes, Hi-Fidelity Prototyping)
    - Emphasising the importance of providing accessible experiences through relevant accessibility features (following WCAG guidelines) for a range of impairments (Visual, Auditory, Physical, Neurodiverse)
    - Supporting students to apply usability testing through understanding the suitability of different data collection techniques (e.g. capturing objective data, conducting observations, think-aloud protocols, surveys, focus groups, semi-structured interviews etc.)
- Preparing and delivering professional presentations to aid with module content and MSc dissertations
- Managing support sessions and Q&As to assist with student-led projects
- Actively engaging with students and providing support/constructive feedback on writing and code

Sep. 2020 - Present

Additional Roles within Academia
Birmingham City University, West Midlands, UK
- *Project Facilitator (AR/VR Accessibility Workshops – funded by Meta)*:
    - Conducted a series of workshops to explore the challenges/barriers associated with developing inclusive immersive experiences
    - Effectively worked with a diverse range of participants - individuals with different forms of impairment (i.e. Physical, Visual, Auditory, Cognitive/Neurodiverse) and industry experts
    - Guided participants through a series of activities (contributing to discussion points, small group ideation, ranking priority research areas, etc.)
- *PGR Representative (faculty of Computing and Digital Technology)*:
    - Chosen as student representative for all Postgraduate Research students within the faculty
    - Effectively communicate student enquiries and issues to faculty co-ordinators
    - Work closely with the doctoral research college and representatives from other faculties to organise events and circulate information/opportunities to students
- *DMT Lab PhD Hub Seminar Series*:
    - Help to bring a series of events and engagements to the wider community of staff and students within the university, to foster routes for cross department collaborations and support
    - Leading and moderating seminars, to ensure they run smoothly and are valuable/engaging
    - Participate in presentations to disseminate high impact research which has been previously accepted at top-tier events
- *Research Summer School*:
    - Support MSc students from a range of courses/backgrounds with their final projects and reports
    - Prepare and lead the delivery of professional presentations and practical activities for students
    - Effectively answer questions and guide students during support sessions
- *Assisting with events, workshops, and university open days*:
    - Collaborate with colleagues to plan and organize the logistics of events and workshops, ensuring all necessary supplies and equipment is prepared and accounted for
    - Act as a friendly point of contact for any inquiries during open days, offering guidance and support to enhance student/visitor experience

PUBLICATIONS

P1 **Spittle, B.**, Panda, P., Tankelevitch, L., Inkpen, K., Tang, J., Junuzovic, S., Qi, Q., Sweeney, P., Wilson, A. D., Buxton, W. A. S., Sellen, A., and Rintel, S. (2024). "*Comparing the Agency of Hybrid Meeting Remote Users in 2D and 3D Interfaces of the Hybridge System*". CHI '24 Late-Breaking Work on Human Factors in Computing Systems (CHI '24). May 2024. ACM. [online]

P2 Panda, P., Tankelevitch, L., **Spittle, B.**, Inkpen, K., Tang, J., Junuzovic, S., Qi, Q., Sweeney, P., Wilson, A. D., Buxton, W. A. S., Sellen, A., and Rintel, S. (2024). "*Hybridge: Bridging Spatiality for Inclusive and Equitable Hybrid Meetings*". In ACM SIGCHI Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '24). Nov. 2024. ACM [ACCEPTED]

P3 **Spittle, B.**, Frutos-Pascual, M., Creed, C. and Williams, I. (2022), "A Review of Interaction Techniques for Immersive Environments," in IEEE TVCG vol. 29, no. 9, pp. 3900-3921, 1 Sept. 2023. IEEE. [online] doi: 10.1109/TVCG.2022.3174805.

P4 Liu, X., Meng, X., **Spittle, B.**, Xu, W., Gao, B., and Liang, H. (2022), "Exploring Text Selection in Augmented Reality Systems". In ACM SIGGRAPH International Conference on Virtual-Reality Continuum and Its Applications in Industry (Guangzhou, China) (VRCAI '22). Jan. 2023. ACM. [online] doi: 10.1145/3574131.3574459.

P5 **Spittle, B.**, Xu, W., Frutos-Pascual, M., Creed, C. and Williams, I. (2021). *Socially Distanced: Have user evaluation methods for Immersive Technologies changed during the COVID-19 pandemic?* 2021 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct). Oct. 2021. IEEE. [online] doi:10.1109/ISMAR-Adjunct54149.2021.00094.

P6 **Spittle, B.** (2021). *Maximising the Transferability of Interaction Techniques for Immersive Technologies.* 2021 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct). Oct. 2021. IEEE. [online] doi:10.1109/ISMAR-Adjunct54149.2021.00108.

PROSPECTIVE PAPERS (WIP)

- "Proxemic AR: Exploring the Impact of Distance on Augmented Reality Selection Techniques" [*to be submitted to IJHCI in September 2024].
- "Exploring User-Defined Locomotion: Natural Approaches to AR Selection Tasks with Different Techniques" [*to be submitted to CHI in September 2024].

TECHNICAL SKILLS

- Scientific Research: Quantitative/Qualitative data, Mixed-Methods, User-Centred Research, Lit Reviews, Report Writing
- Prototyping: MRTK, ARKit/ARCore/ARFoundation, Unity, Unreal, XCode, Arduino, MATLAB, OBS Studio, WebSocket/Virtual Cables, Figma, Creative Cloud, Web Dev
- Programming/Data Analysis: R Studio, SPSS, Python, C#, C/C++, VPLs (blueprints, Pd, Max), Swift, HTML, CSS, JavaScript
- Electronics: Soldering, Circuitry, Testing, Breadboards/Microcontrollers
- Windows, Microsoft Office, Mac OS

NOTABLE ACHIEVEMENTS

- Microsoft PhD Research Fellowship Recipient (2022) – selected from a global pool of applicants
- Completed SEDA Introduction to Learning and Teaching in Higher Education qualification
- Granted studentships to pursue MSc and PhD studies
- Selected for the Doctoral Consortium at IEEE ISMAR 2021
- PRINCE2 Foundation Certificate for Project Management (2019) Candidate number: 9980099077491461 – PeopleCert.
- Developed confidence and leadership skills by completing the Common Purpose Future Leaders Programme (2019)

INTERESTS/HOBBIES

- Playing Video Games (notably action RPGs and platformers)
- Technology (tinkering with hardware and electronics)
- Reading (especially witty non-fiction)
- Travelling