



## **School of Computing, Engineering, and the Built Environment Edinburgh Napier University**

### **PHD STUDENT PROJECT**

#### **Application instructions:**

Detailed instructions are available at :

<https://www.napier.ac.uk/research-and-innovation/doctoral-college/how-to-apply>

*Prospective candidates are encouraged to contact the Director of Studies (see details below) to discuss the project and their suitability for it.*

### **Project details**

#### **Supervisory Team:**

- DIRECTOR OF STUDY: Dr Rod Selfridge (Email: [r.selfridge@napier.ac.uk](mailto:r.selfridge@napier.ac.uk))
- 2<sup>ND</sup> SUPERVISOR: Dr Iain McGregor

**Subject Group:** Applied Informatics

**Research Areas:** Computer Science - other

**Project Title:** Equally Safe Sound Design

#### **Project description:**

This aim of this research is to identifying emotions women might perceive when harassed or intimidated in public spaces and how these emotions might be represented sonically. Findings of this research will then be incorporated within sound designed outputs in order to maximise empathy. Outputs will engage the public, bringing to their attention the prevalence of these incidents and the emotional effect it has on its victims. High impact outputs could include serious games [1, 2, 3], sound maps [4, 5], AR applications [6] and VR experiences [7].

Harassment of women and girls in public spaces is an all too common and underreported issue, affecting a significant portion of the female population. A UK government, all-party parliamentary group survey found that 71% of women have experienced sexual harassment, increasing to 86% of 18–24-year-olds [8]. In contrast, the 2022 BBC / YouGov survey shows that only 5% of women reported these incidents which occurred when walking alone [9].

Equally Safe is the Scottish Government's strategy for tackling violence against women and girls [10]. One of the main emphases is on the importance of proactive engagement to support behaviour change of those who may carry out violence against women and girls. One of the key drivers of behaviour change is empathy among those receiving the information for the victims, [11]. Empathy is defined in [12] as an emotional response to a person's understanding and perception of a stimulus emotion.

In media and interaction design [13], the sound design of any output is one of the main drivers evoking empathy to the emotional context of the content or interaction [14, 15, 16, 17]. This research intends to investigate emotion and the corresponding sounds associated with harassment and intimidation of women and girls in public space. By understanding these it should be possible to employ novel sounds and sound design techniques to evoke empathy in others in relation to these incidents. It is envisaged that outputs derived from this research will support and scaffold behaviour change in those who might commit harassment and intimidation of women and girls in public spaces.

### References:

- [1] Verschueren, S., Buffel, C., & Vander Stichele, G. (2019). Developing theory-driven, evidence-based serious games for health: framework based on research community insights. *JMIR serious games*, 7(2), e11565.
- [2] Salter, A. (2016, May). Playing at empathy: Representing and experiencing emotional growth through Twine games. In 2016 IEEE International Conference on Serious Games and Applications for Health (SeGAH) (pp. 1-8). IEEE.
- [3] Calvo-Morata, A., Alonso-Fernández, C., Freire, M., Martínez-Ortiz, I., & Fernández-Manjón, B. (2020). Serious games to prevent and detect bullying and cyberbullying: A systematic serious games and literature review. *Computers & Education*, 157, 103958.
- [4] Grandison, T., Flint, T., & Jamieson, K. (2022). Digi-Mapping: Creative Placemaking with Psychogeography
- [5] Thulin, S. (2018). Sound maps matter: expanding cartophony. *Social & Cultural Geography*, 19(2), 192-210.
- [6] Rovithis, E., Floros, A., Moustakas, N., Vogklis, K., & Kotsira, L. (2019). Bridging Audio and Augmented Reality towards a New Generation of Serious Audio-Only Games. *Electronic Journal of e-Learning*, 17(2), 144-156.
- [7] Cook, J., Kirkman, A., McAlpine, K. B., & Selfridge, R. (2023). Hearing historic Scotland: Reflections on recording in virtually reconstructed acoustics. *Journal of the Alamire Foundation*, 15(1), 109-126.
- [8] UK Government, All-Party Parliamentary Group, 2001. Prevalence and Reporting of Sexual Harassment in UK Public Spaces. APPG for UN Women.
- [9] BBC / YouGov 2022. Woman's Safety. YouGov.
- [10] Scottish Government. <https://www.gov.scot/policies/violence-against-women-and-girls/equally-safe-strategy/>. Last accessed 09 October 2023.
- [11] Oe, H., & Yamaoka, Y. (2022). Discussion of citizen behavioural change using the nudge effect: A perspective based on social policy interventions. *International Journal of Sociology and Social Policy*, 42(11-12), 1013-1027.
- [12] Cuff, B. M., Brown, S. J., Taylor, L., & Howat, D. J. (2016). Empathy: A review of the concept. *Emotion review*, 8(2), 144-153.
- [13] Pauletto, S., Selfridge, R., Holzapfel, A., & Frisk, H. (2021). From Foley professional practice to Sonic Interaction Design: initial research conducted within the Radio Sound Studio Project. In *Nordic Sound and Music Computing Conference*.

- [14] Hillman, N., & Pauletto, S. (2014). The Craftsman: The use of sound design to elicit emotions. *The Soundtrack*, 7(1), 5-23
- [15] Görne, T. (2019). The Emotional Impact of Sound: A Short Theory of Film Sound Design. *EPiC Series in Technology*, 1, 17-30
- [16] Västfjäll, D. (2003). The subjective sense of presence, emotion recognition, and experienced emotions in auditory virtual environments. *CyberPsychology & Behavior*, 6(2), 181-188.
- [17] Jee, E. S., Jeong, Y. J., Kim, C. H., & Kobayashi, H. (2010). Sound design for emotion and intention expression of socially interactive robots. *Intelligent Service Robotics*, 3, 199-206.

## **Candidate characteristics**

### **Education:**

A first-class honours degree, or a distinction at master level, or equivalent achievements in Computer Science, Sound Design, Sound and Music Computing Music Technology or Acoustics

### **Subject knowledge:**

- Sound Design
- Interaction Design

### **Essential attributes:**

- Sound Design principles
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management
- Audio programming fundamentals
- Interest in safety of women and girls