
Social Paper: Patrick McAllister

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About me

I am a KTP associate with Verbal Arts and Ulster University. I recently graduated with a PhD in computer science from Ulster University. My research interests are in applying, and evaluating deep learning, computer vision approaches to image classification and also researching how chatbot technologies can be used as a mental health intervention. I am keen to learn about how chatbot technologies have been applied in various healthcare domains and how sensor feature-fusion can be used to personalise chatbot services.

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Current Project

I am currently working in a knowledge transfer partnership (KTP) project with Verbal Arts Centre and Ulster University. The aim of this KTP project is to investigate the potential application of using chatbot technology and a conversational interface to deliver an affective bibliotherapy model [1]. The bibliotherapy model, developed by Verbal Arts, uses a “mapped” set of prompts/questions/cues based on stories with participants encouraging them to reflect on and to explore how these stories might relate to their own lives. These “story-maps” are grounded in a framework of Cognitive Behavioural concepts, and with the use of ‘Socratic’ type dialogue and questioning techniques. These ‘story maps’ can increase insight, awareness, personal understanding of their own psychological formulation, as well as learning about problem solving strategies. The bibliotherapy model provides a targeted and supportive creative intervention to those most in need or most vulnerable i.e., people experiencing mental health difficulties and disabilities, ex-offenders, older people, looked after children & young people. The aim of this project is 2-fold; (1) to use chatbot technologies to develop a coaching chatbot to train facilitators to help deliver group bibliotherapy sessions, (2) to develop a 1-2-1 bibliotherapy chatbot that enables participants to continue the bibliotherapy session after the group session ends. Moreover, the project seeks to answer the following research questions; (a) How best to model/simulate the conversation-type interaction of the real-world bibliotherapy sessions using chatbots? and (b) Will this satisfactorily enable individuals, within the technical restrictions of the technology, to interact in a form of discussion about the story through their devices?

Selected Publications

- [1] McAllister, P., Kerr, J., McTear, M. Mulvenna, M., Bond, R., Kirby, K., (2018) Reading Rooms: A Chatbot Guided Bibliotherapy Platform, 2nd International Workshop on Chatbot Research (CONVERSATIONS-2018), 26 October, 2018, St. Petersburg, Russia.
- [2] P. McAllister, H. Zheng, R. Bond, and A. Moorhead, “Combining deep residual neural network features with supervised machine learning algorithms to classify diverse food image datasets,” *Comput. Biol. Med.*, vol. 95, 2018.
- [3] R. R. Bond et al., *SenseCare: Using affective computing to manage and care for the emotional wellbeing of older people*, vol. 181 LNICST. 2017.
- [4] M. Mulvenna, H. Zheng, R. Bond, P. McAllister, H. Wang, and R. Riestra, “Participatory design-based requirements elicitation involving people living with dementia towards a home-based platform to monitor emotional wellbeing,” in *Proceedings - 2017 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2017*, 2017.

