

# Persuasive Technology XIII, 2018

April 16-19, University of Waterloo, Canada

---

## **Submitting and presenting author**

Name: Raian Ali

Organization: Bournemouth University, Talbot Campus, Fern Barrow, BH12 5BB Poole, UK

Email: rali@bournemouth.ac.uk

## **Title**

*A conceptual architecture for empowering responsible online gambling with predictive, real-time, persuasive and interactive intervention*

## **Authors**

*George Drosatos, Fotios Nalmpantis, Victoria Baines, Elvira Bolat, Laura Vuillier, Theodoros Kostoulas, Emily Arden-Close, John McAlaney, Keith Phalp and Raian Ali*

*Bournemouth University, Talbot Campus, Fern Barrow, BH12 5BB Poole, UK*

## **Subject Area**

*Real-time Persuasion, Responsible Gambling, Gamblers Empowerment*

## ***Abstract***

Online gambling, unlike other mediums of addiction and problematic behaviour, such as tobacco and alcohol, offers unprecedented opportunities for monitoring and understanding an addict's behaviour in real-time and adapting persuasive messages and interactions that would fit their usage and personal context. Online gambling sites usually provide Application Programming Interfaces (APIs) mainly to enable third party applications to enhance the gambling experience. In this work, we propose that gamblers' online data, such as navigation path and available offers, can be used to enable a more intelligent and proactive responsible gambling care in a real-time persuasive style. To this end, we propose a conceptual architecture of persuasive responsible online gambling technology. The novelty in our approach is indeed reliant on the real time and interactivity aspects as the intervention and the persuasion can happen in the same time as the gamblers' behaviour is taking place.

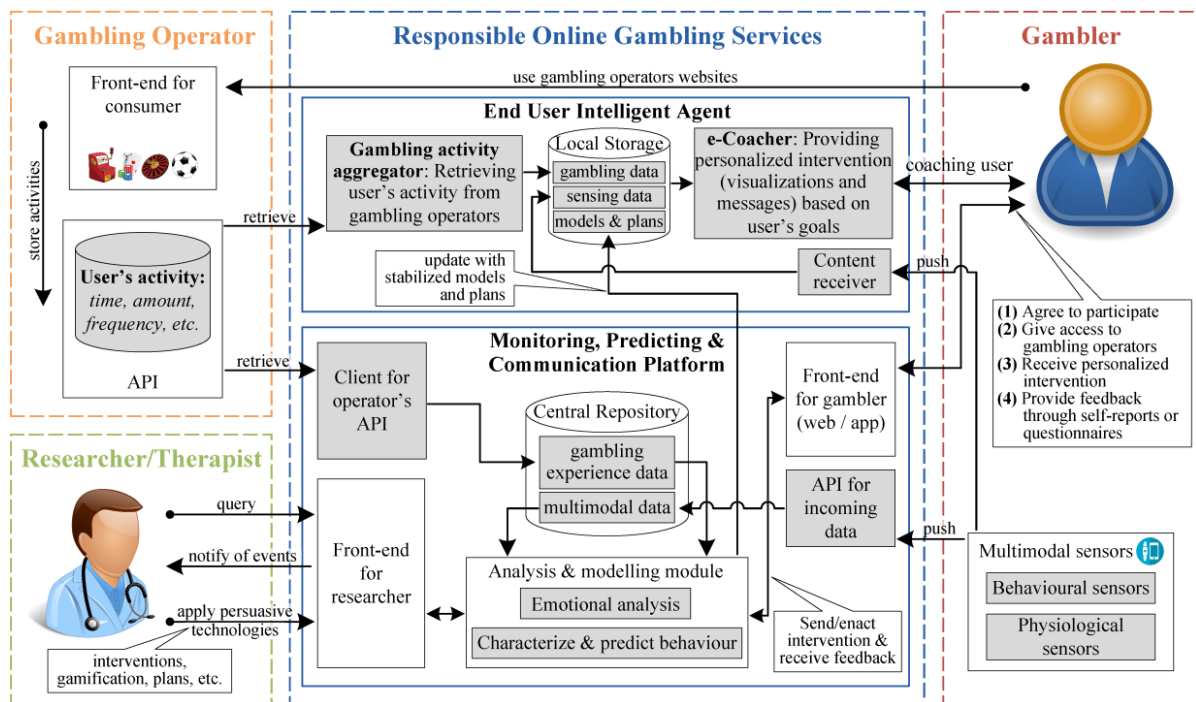
## ***Introduction***

Online gambling is on the rise and gambling disorder is recognized by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Online gambling is easy to access and is empowered by creative technology that makes the medium more and more engaging and immersive for users. However, the characteristics that make online gambling immersive and engaging, simultaneously have a great potential to combat problem gambling. The accessibility and persuasive techniques used in online gambling could equally be used as behavioural change mechanisms to mitigate against problematic behaviour. Indeed, the online space provides a unique chance to empower classical behaviour change as it offers interactivity, real-time response, traceability of usage data, intelligence, personalization and the ability to be context-aware. Building on the established research in influence [1], help seeking and behaviour change [2], online addiction labels [3] and persuasive elements of online peer groups [4], we advocate persuasive approaches for assisting responsible online gambling behaviour rather than relying on coercive ones, e.g. blocking sites and apps. We shall also recognize the risk factors when applying that for addictive behaviours [5].

## ***The Proposed Conceptual Architecture***

The conceptual architecture of our vision is presented in Figure 1. In order to preserve the gamblers' privacy and allow testing, we propose a hybrid approach that constitutes two subsystems: (1) an *end user intelligent agent* and (2) a *research/counselling platform* for responsible online gambling. The second subsystem is responsible for supporting research about persuasive technologies that could be applied to users with addictive behaviour. After a testing and evaluation period the findings (from (2)) could be then fed into the end user intelligent agent. The end user intelligent agent can autonomously run to a large extent and is responsible for guiding the gamblers to self-regulate their problematic behaviour. It has the advantage of providing a high privacy guarantees to the users because the processing and the storage of data happens on the user-side without leakages to any third-party system. Apart from gamblers' privacy guarantees, the benefits of the proposed architecture include: (i) the real time aspect of monitoring and intervening while the behaviour is taking place, (ii) the transparency and traceability of the behaviour, (iii) the possibility of predictive analysis, (iv) the ability to embed responsible gambling within the gambling operator site itself rather than 3<sup>rd</sup> parties, and (v) the possibility to apply it within social settings, e.g. peer groups [4]

Overall, the proposed architecture consists of several components (see in Figure 1) that can be separated into two main parts: (a) the components that are responsible to retrieve multimodal data from many resources, such as gambling operators and gamblers' behavioural and physiological sensors, and (b) the components that analyze, characterize and predict behaviours with goal to provide the personalized persuasive interventions to gamblers.



**Figure 1.** The conceptual architecture for enabling responsible online gambling through gambling data retrieval

### Work in Progress

We are currently using the API's of one major gambling operator in UK and our plan is to get more specialized API's for data retrieval which enables better understanding of gambling behaviour, e.g. navigation path, time spent, offers made, location and device, etc. We are also studying the acceptance of gamblers of the technology and ways to introduce it correctly.

### Acknowledgments

This work was partly supported by the [EROGamb](#) project funded jointly by [GambleAware](#) and [Bournemouth University](#). We also thank StreetScene Addiction Recovery and the Gambling Therapy for discussion which enriched our proposed architecture.

### References

- [1] L. Davidson, M. Chinman, B. Kloos, R. Weingarten, D. Stayner, and J. K. Tebes, "Peer Support Among Individuals With Severe Mental Illness: A Review of the Evidence," *Clinical Psychology: Science and Practice*, vol. 6, pp. 165-187, 1999.
- [2] R. H. Moos and B. S. Moos, "Help-seeking careers: Connections between participation in professional treatment and Alcoholics Anonymous," *Journal of Substance Abuse Treatment*, vol. 26, pp. 167-173, 2004.
- [3] R. Ali, N. Jiang, K. Phalp, S. Muir, and J. McAlaney, "The Emerging Requirement for Digital Addiction Labels," in *Requirements Engineering: Foundation for Software Quality: 21st International Working Conference, REFSQ 2015, Essen, Germany, March 23-26, 2015. Proceedings*, S. A. Fricker and K. Schneider, Eds., ed Cham: Springer International Publishing, 2015, pp. 198-213.
- [4] A. Alrobai, J. McAlaney, K. Phalp, and R. Ali, "Online Peer Groups as a Persuasive Tool to Combat Digital Addiction," in *Persuasive Technology: 11th International Conference, PERSUASIVE 2016, Salzburg, Austria, April 5-7, 2016, Proceedings*, A. Meschtscherjakov, B. De Ruyter, V. Fuchsberger, M. Murer, and M. Tscheligi, Eds., ed Cham: Springer International Publishing, 2016, pp. 288-300.
- [5] A. Alrobai, J. McAlaney, K. Phalp, and R. Ali, "Exploring the risk factors of interactive e-health interventions for digital addiction," *International Journal of Sociotechnology and Knowledge Development*, vol. 8, pp. 1-15, 2016.