Agora VR: Virtual Reality Exposure Therapy of Agoraphobia & Social Anxiety Disorders

Project Abstract

Group #S20-61 Members: Aryeh Ness, Daniel Nguyen, Michael Truong, Ted Moseley
Advisor: Dr. Grigore Burdea

Keywords: Virtual Reality, Social Anxiety Disorder, Psychotherapy, Exposure Therapy, Metacognitive Interpersonal Therapy

March 1, 2020
There are many types of social anxiety disorders. *Agoraphobia*¹ is defined as “a type of anxiety disorder in which you fear and avoid places or situations that might cause you to panic and make you feel trapped, helpless or embarrassed”². Some conventional treatment methods include self-help, therapy sessions, or medication³. People who have these disorders find it difficult or impossible to go out for help and receive treatment and in other cases start to distrust the therapist.

State of the art virtual reality systems have emerged, presenting the average consumer with affordable, high-quality personal-use equipment. One such system is the *Oculus Quest*⁴, a system capable of running virtual reality applications without external computing for the starting price of $399, comparable to that of a mid-range phone or video game console.

Utilizing the *Oculus Quest*, our solution will immerse the patient within a virtual environment that dynamically adapts to the stage of treatment, severity of the disorder, realtime integrated biosensor readings, and external inputs from a clinician and caregiver. The system will integrate several conventional therapy methods such as *psychotherapy*⁵, *exposure therapy*⁶, and *metacognitive interpersonal therapy* (MIT)⁷. The option to use a low-cost, portable system in the safety of their home gives the patient with a low barrier of entry into exposure therapy. With our product, we plan to provide an alternative, more effective treatment option for those who suffer from Agoraphobia and social anxiety disorders.

---

¹ [https://www.nhs.uk/conditions/agoraphobia/](https://www.nhs.uk/conditions/agoraphobia/)
² [https://www.mayoclinic.org/diseases-conditions/agoraphobia/symptoms-causes/syc-20355987](https://www.mayoclinic.org/diseases-conditions/agoraphobia/symptoms-causes/syc-20355987)
³ [https://www.nhs.uk/conditions/agoraphobia/treatment/](https://www.nhs.uk/conditions/agoraphobia/treatment/)
⁴ [https://www.oculus.com/quest/features/](https://www.oculus.com/quest/features/)
⁵ [https://www.psychiatry.org/patients-families/psychotherapy](https://www.psychiatry.org/patients-families/psychotherapy)
⁷ [https://journals.lww.com/jonmd/Abstract/2018/04000/Metacognitive_Interpersonal_Therapy_for_8.aspx](https://journals.lww.com/jonmd/Abstract/2018/04000/Metacognitive_Interpersonal_Therapy_for_8.aspx)