

Reflecting on Research: a Virtual GLAM Proposal

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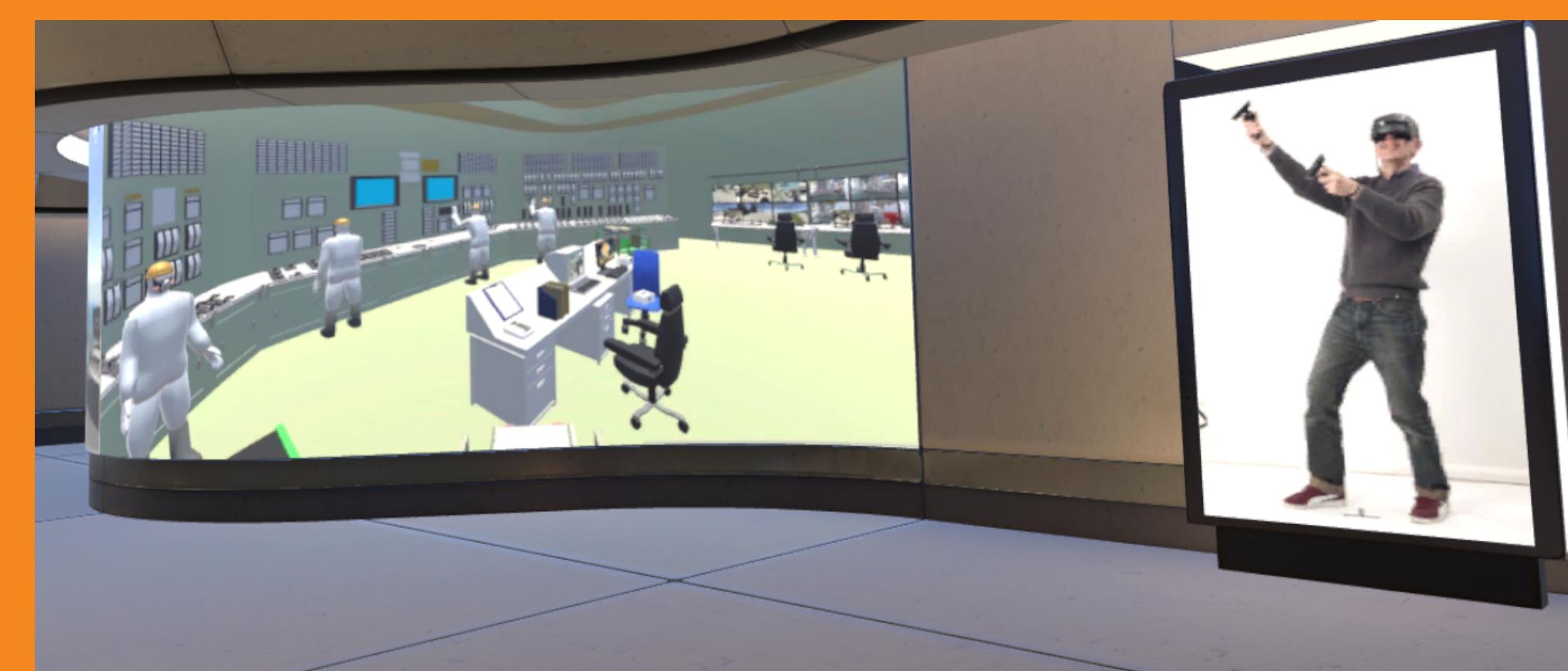
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The poster supports the full paper reflecting on 12 years of 3D WORLDS and VIRTUAL REALITY research in the iVERG lab at FUN.

GALLERIES, LIBRARIES, ARCHIVES and MUSEUMS (GLAM) embrace new technologies so they can offer a more informative visitor experience, merging physical artifacts with supporting information offered in a digital format. It is proposed that university and corporate research laboratories can take the form of a GLAM if appropriated as a virtual entity. A virtual GLAM can subsequently support a holistic overview of research projects undertaken by associated researchers to ensure academic affinity with the overall research theme and facilitate the planning of future research. The paper describes the development of a virtual GLAM as a Case Study and adopts reflective practice as a lens through which to evaluate 12 years of research projects.



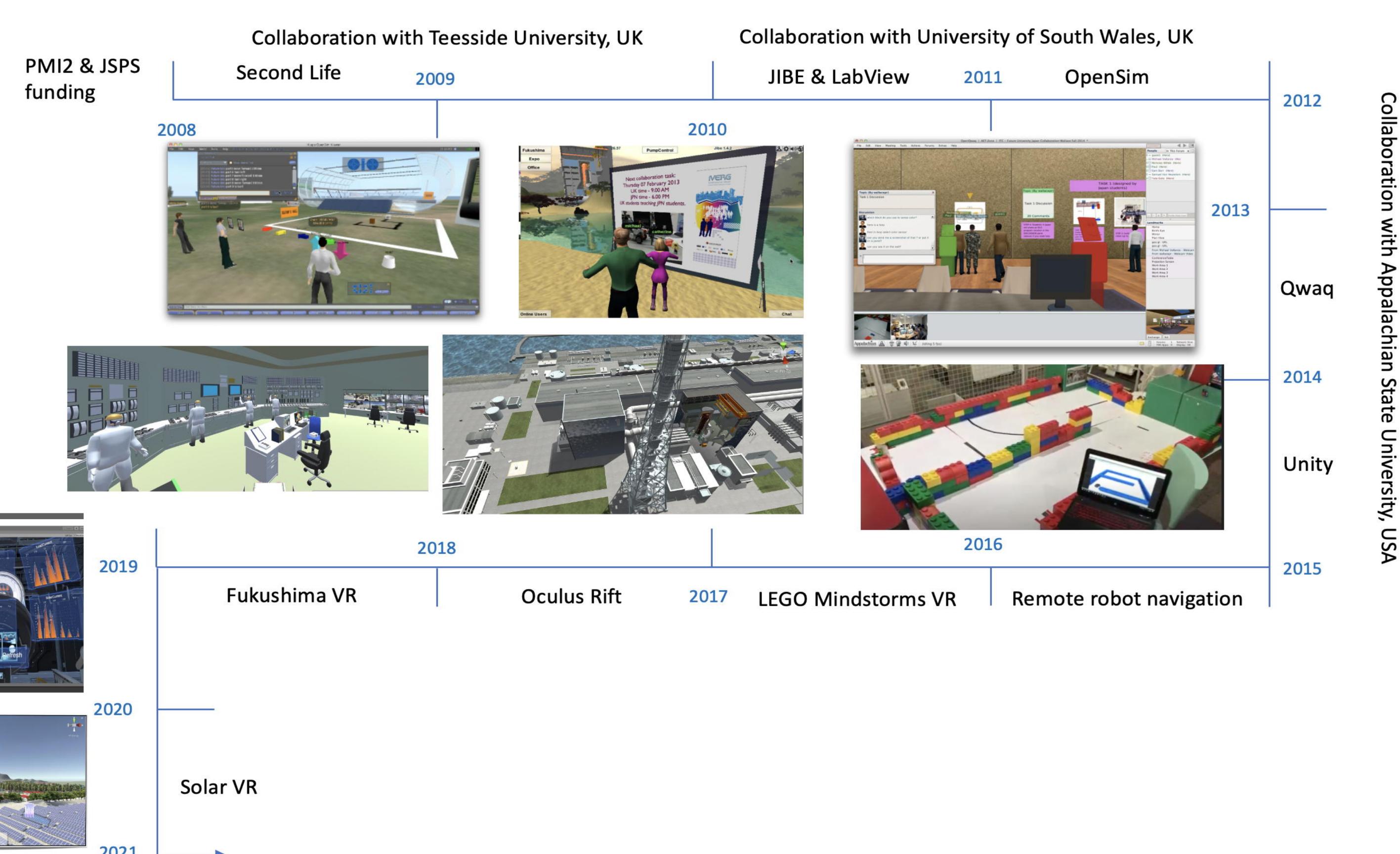
As the COVID-19 pandemic took hold in early 2020, and with government restrictions preventing students from physically entering institutes of education, a virtual representation of the iVERG Lab was designed and programmed.

The development of the virtual GLAM progressed through five instructional design phases: Analysis, Design, Development, Implementation and Evaluation (ADDIE).

- Phase 1: Analysis of research projects along a timeline, and their connection to the main iVERG Lab theme of extrasomatic communication.
- Phase 2: Design the virtual GLAM to reflect the longitudinal process and significant epoch moments displayed in multiple media formats.
- Phase 3: Develop the virtual GLAM using Unity, and also prepare the photogrammetry tools.
- Phase 4: Implementation of the virtual GLAM using Oculus Rift HMD.
- Phase 5: Evaluation through user experiences, and refine the virtual GLAM with recommended improvements.

Due to the restrictive access imposed by COVID-19 regulations, the development was undertaken remotely using Unity, PlasticSCM and Teamviewer.

To display the hardware used throughout the research projects a dedicated photogrammetry XCode application was also developed.



Reflection is a learning mechanism that includes the process of stepping back from an experience and through extensive consideration get a better and deeper understanding of a phenomenon.

RESEARCH	REFLECTION		
	Context	Meaningful	Trustworthy
May 2008 – April 2010. Title: Processes, outcomes and metrics for assessing synchronous and asynchronous collaboration in Virtual Worlds. (Prime Minister's Initiative 2 (PMI2) Science Connect Research)	To determine successful metrics for assessing tasks in emerging Virtual Worlds.	International collaboration discovering the affordances of 3D virtual environments, resulting in a valid and reliable framework tested in subsequent projects.	60 hours of communication recorded, transcribed and categorized. Subsequent quantitative data analyzed. Results confirmed by inter-rater reliability of 3 experienced researchers. - 6 peer-reviewed publications.
See paper	for reflection	of all	research projects.
April 2018 – March 2021 Title: Engineering virtual reality for real learning (JAIST Challenging Exploratory Research)	Solar power tasks for remote maintenance and training where robots and sensors in a virtual reality (VR) space will be synchronized to real-world robot and sensor	Extrasomatic communication is the subsequently measured intra-cognitive and inter-cognitive communication which occurs during a VR immersive experience.	International and inter-disciplinary collaboration and communication during the research process. Quantitative data collated and supporting qualitative data subsequently analyzed. - 8 peer-reviewed publications.

The culmination of 12 years of research was able to be viewed within the virtual GLAM in order for the researchers to reflect upon their implementations and progression. The emergence of VR as an accessible and reliable technology enables researchers to reflect on their projects and consider sharing their efforts to a broader audience in the form of a virtual GLAM.