



## Overview

As an analytical and solutions-focused researcher, I am dedicated to studying the impact of controller-related setup and issues on the user experience in VR within industrial fields. My research aims to improve the usability and effectiveness of VR technology in various industrial applications by understanding the impact of controller-related setup and issues on the user experience. Ultimately, this research could lead to the development of better VR technology and improved outcomes in industrial applications.

As part of my doctoral research, I designed, built, and implemented a new framework solution in Python. This framework manages the raw input data from input devices, resolving interoperability and compatibility issues caused by the heterogeneity of input device designs with games or 3D applications. My research is part of a Computer Science-focused project sponsored by CONACyT-SENER Hidrocarburos. I am committed to driving innovation and advancing the field of VR technology to improve user experience in industrial settings.

## Education

### Employment

#### UKFast, Manchester

Sep 2019 – Present

Research & Development Specialist

**Skills:** Visual Studio 2019, C# 8.0, .NET Core 3.0 SharePoint Online, Power Platforms: PowerApps and Power Automate, REST, JSON, Azure App Service

Conduct research into new/existing processes, technologies, devices, techniques, and materials to determine key areas of improvement. Designing and development of Power Platform based solutions.

- Experienced in software development using C#/JavaScript, and managed data in SharePoint On-Premise using SharePoint client object model (CSOM).
- Executed REST and CRUD operations via JavaScript/jQuery and CSOM for keeping records current and permanent for UKFast sites.
- Developed and deployed event receivers in SharePoint 2019 using C# for categorisation and watermarking sensitive metadata and confidential documents as part of the compliance department policies.
- Led to administer and develop SharePoint sites, PowerApps and Power Automate flow solutions to empower users by automating time-consuming processes requiring sending/receiving notifications collecting data, and saving them among various platforms.
- Developed an incident management solution using SharePoint Lists and Power Automate, REST, and JSON to categorise, organise and resolve major incidents that result in downtime or service interruptions.
- Successfully developed an On-call Rota solution using SharePoint Lists and Power Automate to send notifications via Microsoft Teams of the Engineers on call for each week.
- Produced deliverables to agreed deadlines and objectives and assisted in the maintenance of deployed software, including investigating and fixing defects.

#### University of Manchester, Manchester

Sep 2017 – Sep 2021

Doctoral Researcher

**Skills:** Python (2.7 – 3.74), OWL/RDF, Java, Visual Studio 2017/2019, Visual C++ 9.0, OpenGL 2.0, libQGLViewer 2.6.4, QT creator 2.7.0, QT 5.14.1 C++ 11.0, C# 7.0 and 8.0, Protégé, Semantic-Web, Git, Unity Game Engine.

Executed comprehensive doctoral research and processed findings with precision for analysis and evaluation for interaction techniques in 3D interfaces utilising AR/VR technologies. Performed routine laboratory tasks and duties and maintained meticulous records, and collated and managed resulting data to a high standard.

- Experienced in software development using Python and developed an OWL/RDF ontology management tool using Protégé for my PhD thesis.
- Experienced in the full software development lifecycle, including using a version control tool in Git via the command line to set up and work with a local repository.
- Experienced in integrating description logic and database technologies for expressive ontology-based data access.
- Proven skills in 3D modelling to visualise computed tomography (CT) datasets using Paraview, Avizo and Drishti, and performing statistical analyses of datasets.
- Performed routine laboratory tasks and duties and maintained meticulous records, and collated and managed resulting data to a high standard.

- Successfully developed a new API to provide for a natural and intuitive Human-Computer interaction (HCI) in VR/AR applications using control mechanisms that best suit their abilities.

#### **University of Manchester, Manchester**

**Sep 2017 – Aug 2020**

Graduate Teaching Assistant (GTA)

**Skills: C/C++ IDE and compiler for Windows based on gcc, Java, Prolog, SPARQL, SQLite3.**

Assisted in delivering high-quality education to undergraduate and postgraduate students in teaching laboratories within the Department of Computer Science at the University of Manchester in compliance with the assessment criteria. Specific duties included:

- Assisted the undergraduates and postgraduates in performing the required tasks within the laboratory.
- Assisted in providing suitable additional teaching materials relevant to the stated aims of the particular laboratory programme.
- Helped to mark essays, reports or other forms of assessment as relevant to the laboratory programme.
- Helped to provide feedback to students as appropriate.

#### **4<sup>th</sup> Source, Yucatan, Mexico**

**Mar 2016 – Oct 2017**

SharePoint Developer

**Skills: ASP.NET, C# 5.0 and 6.0, SharePoint, JavaScript, SQL Server 2012, Visual Studio 2012/2013**

Developed extensive experience with Microsoft SharePoint 2007/2010/2013, SharePoint Online, C#, ASP.NET, and Nintex.

- Experienced in software development using C#/SQL server/ JavaScript, and managed data in SharePoint 2013 and using SharePoint client object model (CSOM) for SharePoint 2013 and SharePoint Online.
- Experienced in the full software development lifecycle, including the use of a version control tool in JIRA.
- Successfully supported St Jude Children's Research Hospital in the state of Tennessee, US to automate document management for paediatric treatment and research facility using SharePoint 2007, and 2013.
- Optimised the appointment scheduling system using ASP.NET and C# programming to minimise resource overtime, patient waiting time, and waiting area congestion.

#### **Calrom, Manchester**

**Feb 2015 – Jan 2016**

.NET Developer

**Skills: ASP.NET, C# 4.0, SQL Server 2012, Visual Studio 2010**

Spearheaded debugging and maintenance of existing software to enhance airline application performance within the UK.

- Experienced in software development using an object-oriented programming language using C#/ASP.NET.
- Data entry via ASP.NET WebApp, manipulation and report generation through WinForms application.
- Modification of ASP.NET based editorial systems to incorporate a common Angular control allowing editors to classify documents.

#### **Techfield LLC, Atlanta, Georgia**

**Mar 2014 – Oct 2014**

**Unbounded Solutions Inc., Atlanta, Georgia**

**Jul 2011 – Mar 2014**

Sharepoint Consultant

**Skills: ASP.NET MVC, C# 4.0, Entity Framework, SQL Server 2008, TFS, Visual Studio 2010, WCF, WPF, WWF**

Provided customised business solutions to allow clients to improve productivity and diminish operational costs.

- Experienced in software development using C#/SQL server/ JavaScript, and web parts development and CSOM using MS SharePoint 2007, 2010 and 2013.
- Provided assistance to two insurance companies in the US, ranging from 100 to 300 individuals, aiding in automation of management and authorization of documents by utilising SharePoint.
- Supported government institutions in the state of Arkansas, in the US, to automate the registration process for Medicare, by effectively managing documents and authorising budgets using SharePoint.

## **Prizes**

#### **The David Duce Prize**

Sandoval Olivé, Mario (Recipient), 9 Sept 2021

#### **The Terry Hewitt Prize**

Sandoval Olivé, Mario (Recipient), 11 Sept 2020