

# Naman Merchant

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A Games Programmer who specializes in UI and Systems Development, currently exploring different aspects of computer science including Distributed Computing, AI and Parallelization.

## EDUCATION

**FEB 2018 – PRESENT**

**PhD in Games and Computing**, UNIVERSITY OF ABERTAY, UK

This PhD is fully funded and part of a bigger research project. Using the skills gained in the process of developing games, I moved on to applying them in different fields. The PhD is about simulating cancer spheroids on a distributed computing environment where my focus is on system design, optimizations, latency management and synchronization on a distributed memory network.

**NOVEMBER 2017**

**Master of Professional Game Development**, UNIVERSITY OF ABERTAY, UK

## SKILLS

### CORE SKILLS

- **Languages:** C++ | C# | C | Java | Python | Haskell | Fortran90 | HLSL
- **Platforms:** Windows | Linux | PlayStation 4 | PSVR | PC | Android | Web | AR
- **APIs:** Direct X 11 | MPI | VTK | CUDA | AMP
- **Source Control:** Git | P4V (Perforce)
- **Core:** Gameplay | AI | VR | Graphics | Engine | Distributed Computing | Time Synchronization
- **Audio:** Pro Tools | FL Studio | Wwise | Audacity

## PROJECT DRIVEN EXPERIENCE

**JUNE 2018 – CURRENT**

**PhD Project**, DISTRIBUTED REAL-TIME SIMULATION OF CANCER CELLS

Key aim is to produce tools for cancer drug discovery using multiscale cell simulation. The model needs to accommodate cell-cell and cell-environment interactions with a **real-time** user interface. To my knowledge, this has not been done before. The proposed methodology: distributing the computation through a **scalable agent-based simulation** such that it can be run in real-time irrespective of its computational time complexity.

Based on the final aim, some finer details need investigation:

- 1) Working on C++ based projects to benchmark the accuracy and speed of different frameworks on: MPI (Message passing Interface).
- 2) Compared and implemented different methods of synchronization in a distributed memory network. This was done using MPI in C++ and visualized using VTK and Python.
- 3) Aim to accurately optimize real-time interactions & visualizations in a distributed memory simulation.

**MAY 2017 - CURRENT**

**Programming Team Lead, YOU ARE BEING FOLLOWED**

A PlayStation®VR Exclusive, YOU ARE BEING FOLLOWED is a game currently under development and in the process of being published on the PlayStation®Store. Being the Lead Programmer, I have dabbled into all parts of the development process including Gameplay, Ai, Graphics and Systems Programming. I have also been working closely with the PlayStation Platform and the core mechanics of the game. This game was created using Unreal Engine 4, where I used both Blueprints and C++ for development. We were tasked by **BAFTA** to bring a winning game concept from Young Game Designer 2016 to life.



**MARCH 2017 - MAY 2017**

**Individual Project, PROCEDURAL DUNGEON: DIRECTX 11**

The aim of this project is to demonstrate the use of DirectX in C++ and create a procedural 3D environment. While always using game engines, my aim here was to understand how the rendering pipeline works underneath a game engine. This project also helped me understand how I could work towards building my own game engine in the future. To obtain a non-conventional pattern, this procedural dungeon is generated with a combination Voronoi diagrams and Delaunay Triangulation. The Code for this project can be found on my portfolio website.

Many more of my personal projects can be found on my website:  
[www.namanmerchant.com/projects](http://www.namanmerchant.com/projects)

## PROFESSIONAL EXPERIENCE

**JUNE 2018**

**Freelance Developer, FLEUR'S WONDERLAND**

Fleur's Wonderland is an **AR Driven app** created specifically for a Penguin statue: Fleur. We were given **3 weeks** to deliver a publishable product on the mobile market (iOS & Android). I used Unity and Vuforia engine to create this app and publish it within the urgent time window. I was responsible for **communicating** with the client and **generating content** which would fit the occasion appropriately.



**FEBRUARY 2018 – PRESENT**

**Teaching Part-Time, UNIVERSITY OF ABERTAY, UK**

Here I taught undergraduate Game Development students a variety of subjects, e.g. Parallel Computing, Systems development, 3D mathematics and core C++. One module involved getting the students to understand Sony's Proprietary PS Vita technology to creatively generate AR content for the platform using C++. The challenge here was to understand the platform thoroughly myself before finding creative ways to explain it to students.

**JUNE 2016 - AUGUST 2016**

**Indie Game Developer, DISTORTED – PIXEL PIRATES**

Distorted is an Android based game which is available on the Play Store. I developed this game in Unity 5 (C#). Here, along with all the programming, my role extended to Sound Design and Game Design. From genesis to publishing it on the Play Store, there was a lot that I learnt from this project.



## ACHIEVEMENTS

### REPRESENTED UKRI ON AN INTERNATIONAL LEVEL

- Represented **UK Research and Innovation** at the AAAS conference Washington DC, 2019. Here I showcased one of my games along with my PhD research project at an exhibition booth. 20 projects in all of UK were selected for this and I was representing two of them.

### IGDA SCHOLARS GDC 2019

- Of over 500 applicants, I was one of 15 selected. Awarded a **scholarship** and travel stipend to attend **GDC 2019, San Francisco**.

### PHD STUDENTSHIP

- My PhD is **100% funded** by the Northwood Trust where I get paid monthly while my tuition fees are waived.

### CERES 2016

- Successfully acquired over 2000 individuals for an inaugural college festival where I was **leading the Public Relations Team** (35 individuals) responsible for the outreach of the event.

### YOU ARE BEING FOLLOWED

- **BAFTA** for Young Game Developers (YGD) 2016 for the Concept.
- **BBC, ITV and TayFM** interviewed me for the game at Abertay University in September 2018. ( <https://youtu.be/bt6sERK0eXA> )

### HAKUNA'S FIRE

- Awarded the FICCI Frames **BAF Award 2016** for the Student Game Category.
- Nominated for NASSCOM GDC **Student Game of the year 2015** as one of the best 5 games.
- Selected as one of the top 20 games by Game Hack at **Pocket Gamers Connect India 2016**.

### RIPPLES THROUGH TIME

- Selected as one of the Top 10 games at **Build Your Own Game 2015**.

### GLOBAL COUNTERFEIT

- Won the 3rd Abertay **Serious Game Jam 2017** in collaboration with **INTERPOL** and **IIPCIC**.

### AT RUBIKA SUPINFOGAME

- **Awarded for Academic Excellence** for overall performance in the 2nd Year of Game Design.

## HOBBIES AND EXTRAS

- **Reading & Writing** (Mostly Fantasy)
- **Music**
- **HEMA: Historic Martial Arts** (Sword Fighting)
- **Tennis & Swimming**
- **Organize Large Scale Cultural and Sports Events**
- **Travelling & Exploring**