



My Unreal Engine Journey

Interest in a Summer internship
By Clayton Christensen



Starting Out

My first venture into Unreal Engine was in the summer of 2018 after my sophomore year of high school. My parents Visual Effects company got offered a deal if they could make a realistic and soothing virtual reality experience, so my dad gave me a shot at making it happen.

For the better part of that summer I did my best to create a fun, lightly interactive experience, filled with colorful scenery, peaceful animals, and pretty sounds. This was honestly the best way I think I could have started out with UE4. It was simple, I was able to get familiar with blueprints, and I was able to be creative in ways I could never even fathom before. Creating a beautiful little world that would help people relax and working on Virtual Reality a largely untapped reservoir at the time created one of my most impactful summers. All thanks to Unreal Engine.





The Switch

Going into my **Junior year of high school**, I had a fair bit of coding experience under my belt and I wanted to grow as a programmer. **This led me to switching over to Unity** for a couple reasons:

- Unity had a vast reservoir of online tutorials that offered coding solutions to game mechanics and interactivity. Unreal tutorials are still and probably will always be mostly blueprint based. This is not a bad thing, as blueprints can vastly reduce the time and complexity of mechanic implementations, but I was itching to code and blueprints felt almost like cheating.
- I am not a lifelong, talented artist and wanted to stick to 2D games for at least my first couple games. Unity has a much better 2D system in place.
- I wanted to test the waters on what other engines offered. I knew after a summer of Unreal that I had barely touched the surface, but I at least felt that I had a good grasp of what it offered and wanted to see what other options were.

Goblin Kicker 3000 - iOS Game

Goblin Kicker 3000 was a huge project for me to undertake and far bigger than any first game had any right to be (with 72 levels), but I can confidently say that I would do it all over again if I could. It was **my first inspiration**, my first personal drive to create something bigger than myself, something that would last far longer than I ever could. My friends and I came up with the idea of Goblin Kicker 3000 while we were bored during middle school recess during the height of the mobile game faze. It was an idea that none of us had talked about in years, but for some reason almost 4 years after we had developed it in our minds, it popped into my head while I was thinking of what game to develop in my free time.



Released December 2021

Elf Rush - iOS Game

Elf Rush is something I created in the first two months of senior year. I was in my final stages of making Goblin Kicker 3000 and wanted to figure out how to get a game in the app store.

I wanted to **experiment with app store integration**, with a simple game before trying to put Goblin Kicker 3000 through the process. Elf Rush was supposed to be a simple flappy bird type game, but I kept having new ideas of what to add and I kept on implementing them. I started to create levels, and made it so that the bird could turn into a turtle and a human. Added an insane mode, which still gives me headaches thinking about. Elf Rush is where I truly learned about design creep and just how important it is to make sure you have a well thought out scope that is consistently referenced and updated along the development journey.

Released March 2020





High School is Over

With covid taking the forefront of the later half of my senior year, throwing prom and most other face to face social interactions (including graduation) out the window, video games became one of the **best way to stay connected** to friends and still hang out. These fun and exciting experiences were really the motivating factor in moving my future projects to be multiplayer. So with a goal to develop at least one solid multiplayer game by the end of summer... I started my summer journey.

Drive Thru High School Graduation - Top 5% of Graduating Class



Boom! Unity Multiplayer (UNET) depreciated in 2018.

It was a hard pill to swallow, and I knew there must be a way somewhere out there. And so I learned of photon and mirror. The two heavy hitters that rose out of UNET's ashes. After much consideration, (price) being one of the big deal breakers, I decided to learn Mirror. A free open source plugin for Unity Multiplayer. **I learned so much about networking** the summer of 2020, all of it super fascinating and useful. I was able to get animations, characters and items to replicate across the network properly and had them interact successfully with each other. I got UI in place to find servers and learned the basics of integrating a player-to-player setup through Steam. It was awesome and while I wasn't able to complete a game that summer I had learned about a whole new field that lives within the overarching term CS and was proud of my effort, and so **I went off to college with C# whirling around my mind and the new multiplayer possibilities now within reach.**




The Realization

During my first semester of college I wanted to test out some phys 1 principles in Unreal. I knew it had a pretty robust physics engine and wanted to see how far I could push it to its limits and just how different it would be from Unity's. During this testing phase I found something that made my months of effort during the summer seem almost wasted...

With a click of a button I could replicate variables, characters, animations, and simulate a listen server, a dedicated server, or a client side version of my game. It did half the things I spent months learning about in two seconds.

This is when I realized the superiority unreal holds, not only in its gift of knowledge and resources, but in its dedication to multiplayer, efficiency, and community.



MageBall - Future Steam Game Release

I came up with the idea of mageball the summer of 2021. By this time I was already pretty comfortable with Unreal and have gotten comfortable with unreal documentation, coding and blueprints. I came into the summer knowing Unreal is what I was going to focus on, and multiplayer was the way forward. While looking into **Unreal Multiplayer, I learned about the gameplay ability system (GAS)**, that is an incredibly powerful tool replicating skills, buffs, and attribute systems over the internet, which is integral in a lot of games, extending across multiple genres. The more I learned about the system the more excited I got to make a game using it, and through some helpful github repos I was able to take my first steps experimenting and figuring out the system. During this process I learned about what GAS can and can't do and tried to create a game idea that would fit within the scope of what I could accomplish using it. That is how I came up with Mageball, a game with goblins as players and wizards as goalies. It was a huge endeavor for my first unreal game, but I wanted a good game, a game I could proudly play with my friends and hopefully show off too the world. With the heightened scope of a **3D multiplayer game**, I plan to have Mageball done by the end of summer 2022.



Moving Forward

I have gotten a decent grasp on the complex but incredibly powerful Gameplay Ability System, and am fairly confident that I will be able to use it to create the skills, abilities, and passives that I will be using throughout my game. What I am having troubles on right now though, is the ball in Mageball. I am currently having troubles integrating the **Bullet3 physics engine into Unreal**, but it is a difficult and intricate process that I am trying to figure out. The timeline of getting Bullet3 working in Unreal is the biggest unknown in the scope I have defined for my project. It is very fascinating trying to figure it out, and I have honestly **learned a lot about physics systems** and even more about what I don't know YET.

I'm continuing to learn more about the UE platform (and problem solving along the way). I love its digital development playground! Between studies I continue to work towards releasing MageBall on the Steam platform.



Summer Internship - 2022

I'd love to be an intuitive member of an intuitive development community as a summer intern and I look forward to diving into projects.

Knowledge in Adobe Photoshop & Illustrator, Google Drive Apps and Microsoft Office - comfortable with both PC & Mac
Strong knowledge in Unity and C# along with Unreal Engine and C++ - Experience with: Java | VB | Linux
Practical and logical | Efficient | Trustworthy | Friendly | Good Listener | Quick Learner

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