

# Karim Abouelkawam – Engine and Gameplay Programmer

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Current Address: Liverpool, UK

Email: koky.abouelkawam@hotmail.com

Mobile: +447492771629

Nationality: British Citizen (Right to Work)

Check out my Portfolio: <http://karimabouelkawam.com>

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## Personal Profile

I am a gameplay and engine programmer with almost 5 years experience and 2 AAA games shipped. I am currently working at CIG on one of the biggest Space Simulator MMO games, Star Citizen. I have been involved with many large projects and equally large teams, tackling large technical debts and problems to solve. Furthermore, I have been fortunate enough to work alongside the industries' biggest talents giving me the experience I have today working on AAA games and I am excited for what challenges await me on the next project. I am a very passionate programmer with deep knowledge about game engine systems and mathematics.

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## Work Experience

Throughout my career as a gameplay and engine programmer, I have worked on various systems in many different engines. I will summarise them here but feel free to view my portfolio for more detailed descriptions

### August 2024 - Present Day, Core Gameplay Programmer III

- Working on **Star Citizen's** Persistent Universe
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### July 2021 – July 2024, Full Time Engine Programmer at EA

- Working on the **Battlefield** franchise for the past 9 months on the optimization team using **Frostbite**
    - Identifying performance issues and fixes in all parts of the game
    - Completed Tool development for automated performance reporting
  - Worked on **Need for Speed Unbound** as an engine programmer. I worked on various issues using a custom Frostbite fork
    - Full UI Input system refactor implemented that solved many issues with the old system
    - Completed improvements and missing features to input system such as pad support for PC
    - Feature Integrations from new engine versions and other game versions
    - Fixed countless bugs and crash fixes in the frostbite engine
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### October 2019 – July 2021, Full time Core Tech Programmer at Codemasters

- Worked on **DIRT 5** as an engine programmer using an in house engine named Evo
    - Low level, per platform, Implementation of Rumble and Force Feedback using the manufacturer APIs (e.g. Thrustmaster, Fanatec etc.)
    - Refactored Input system to improve support and fix various issues
    - Implementation of a new HTML interfacing system to get data from Azure servers
    - Improved Crowd Rendering Tech and Shaders
    - Managed and reviewed many crowd logic changes from a third-party studio that was assisting us
    - Various others fixes and improvements in the engine
  - During the last 6 months of this period, I also worked on **WRC** within **Unreal Engine 4**;
    - Utilising my **physics programming** knowledge to complete a loose parts system for cars (allows pieces to fall off and hang when crashing). This included artist tools to setup each car
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### June 2017 - February 2018

- During my University gap year, I worked on many things to gain experience
    - Worked with a company named UPLEC industries as a programmer developing a serious game in the **Unity Engine**
    - Improved a cyber security planning application with a company named Cyber Design the was able to secure funding of almost £50k with my improvements to the software within only 3 months
    - Started and ran my own indie studio called Digital Pine Studios that I still run today in my free time working as a programmer on an **Unreal Engine 5** game called **Stuck Together**
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# Skills Profile

## Software Engineering Skills

- Excellent knowledge in **C++** and **C#** Languages utilizing Object oriented and Data Oriented Programming
  - Excellent knowledge of **Unreal Engine 4 & 5** and the **Unity Engine** with many games developed in both (see my portfolio for details).
  - Years of experience working with in house engines too that has given me a greater understanding of much lower level systems
  - Extensive knowledge with using GDK and the PS5 API for cross platform games
  - Extensive knowledge of rendering APIs such as DX11 & 12 and OpenGL
  - Extensive knowledge of shader languages such as HLSL and CG
  - Extensive knowledge of Source Controls such as Perforce, Plastic SCM, Git and SVN
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## Physics and Math Knowledge

- Before Game Development my aim was to be a physicist therefore I am very passionate about the subject and am always very excited to work on anything physics or math heavy in game development
  - Often give various talks on physics topics such as Quantum mechanics and astronomy with Liverpool John Moores and Liverpool University
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## Entrepreneur and Leadership

- Currently own a fully incorporated and registered indie studio of which I am the director and lead programmer in my free time as a passion project, just for fun (Digital Pine Studios - [digitalpinestudios.com](https://digitalpinestudios.com))
  - I have assembled and manage a team of 5 within the company
  - Already released one game and currently working on the second
  - During the 6 years of running Digital Pine Studios I have been able to collaborate and meet with many industry individuals including the CEO of Team 17 and the Director of PUBG
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## Teamwork and Management

- Working in EA and Codemasters meant I got to work with gigantic teams of almost 1k people and have had training within these companies to improve my teamwork when talking to many different people across many different time zones
  - Working with such large teams has allowed me to be a very efficient and an effective communicator
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## Education and Qualification

### 2015 – 2019 Liverpool John Moores University (LJMU), BSc / Computer Games Development

- Graduated with a First Class Degree at 82% overall with Honours
- Awarded Highest Achieving Student for both Level 5 and Level 6 (second and third year)
- Acquired a World of Work Certificate for working 1 year in the industry (UPLEC and Cyber Design)