Kaloyan Penev

Graphics Software Engineer

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EXPERIENCE

GRAPHICS SOFTWARE ENGINEER

Hawk-Eye Innovations • Dec 2021 – Present

Unreal Engine | C++20 | Qt6 | OpenGL | HLSL | GLSL | CMake | Git

- Develop real-time AR/VR visualizations for officiating and entertainment, blending physical and virtual worlds at major sports events with viewership in the billions: FIFA World Cup 2022, UEFA Champions League, Wimbledon 2023

- Work on a custom multi-system Virtual Production pipeline in UE4/C++20, orchestrated via a Qt6 GUI app, with TCP/IP and JSON for inter-system communication

- Deliver broadcast visuals meeting world class technical requirements across cutting edge camera systems and industry standards

- Employ test-driven development with gMock and Unreal Test Automation frameworks for elegant, robust code across interconnected systems, ensuring resilient and high performance applications

- Optimise UE4 performance on both GPU and CPU, increasing rendering and draw budget for better graphics

- Practice agile development (Scrum, Kanban) in a 4-person team; experienced with ceremonies and cross-team coordination

JUNIOR UNITY DEVELOPER

VISTA AR & Bournemouth University • Feb 2020 – Jul 2020

Unity | C# | HLSL | Shader Graph

- Development and profiling of AR apps in **Unity**
- Performance optimization for mobile devices
- Shader programming with **HLSL** and Shader Graph

PROJECTS

HAND POSE RECOGNITION

Python | YOLOv4 | C#

Deep convolutional neural network with a TCP/IP server-client with Unity

3D GAME ENGINE

C++17 | OpenGL | GLSL

Physically based 3D rendering engine with an ECS object architecture

EDUCATION

BSc GAMES SOFTWARE ENGINEERING

Bournemouth University • Sep 2018 – Jun 2021

First Class Honours (80.49%)

- Dissertation: Hand Pose Recognition – **80.50%**
- Graphics and Computational Programming – **83.03%**
- Game Engine Programming – **79.00%**
- Physics For Games - 89.00%