NIKOLAOS PAPADOPOULOS

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Software engineer who enjoys solving complex problems and driving projects from concept to commercialization. I have a strong focus on writing clean and efficient code and take pride in my attention to detail. While my expertise lies in computer graphics, I am a versatile generalist skilled at tackling a wide range of technical challenges with creativity and precision. I maintain a blog where I write about technology and science, reflecting my enthusiasm for continuous learning and knowledge sharing. I am a member of ACM and my local astronomy society. Above all, being a dad has taught me valuable lessons in patience, perspective, and problem-solving that I apply to my professional life.

MASTER OF SCIENCE
Computer Graphics Programming
University Of Hull

BACHELOR OF SCIENCE
Computer Science
University Of Piraeus

ENGLISH Fluent
GREEK Native

NATURAL MOTION
PRINCIPAL GRAPHICS SOFTWARE ENGINEER
2021/03 - 2024/12
3 Years, 10 Months

Contributed to the development CSR3 from prototype to launch, advancing the graphics team's technology stack. Focused on optimization and scalability to ensure broad mobile device compatibility. Researched and implemented cutting-edge graphics algorithms to enhance visual fidelity. Worked closely with artists to streamline content creation, reduce production costs, and speed up build cycles. Assisted with troubleshooting, and optimizing legacy code.

TECHNOLOGY STACK

`Unity 3D Engine` `C#`
`HLSL` `OpenCL`
`Shaders` `Android` `iOS`
`RenderDoc` `Javascipt`

- Designed and implemented one of the game's core lighting systems. Researched state of art in irradiance encoding, prototyped and benchmarked several techniques. Implemented a mobile friendly, low footprint and context aware system. Designed a simple workflow and intuitive tooling for artists.
- Designed and implemented a shadowing system using exponential variance shadow maps (EVSM) and cascaded shadow maps (CSM), enabling detailed, real-time shadows on both interior and exterior vehicle surfaces.
- Assisted with onboarding new team members, and played an active role in fostering a collaborative and knowledge-sharing team culture.

NATURAL MOTION
SENIOR GRAPHICS SOFTWARE ENGINEER
2019/06 - 2021/02
1 Years, 8 Months

Focused on research and development of graphics algorithms for CSR2. Implemented a long list of improvements and bug fixes. Provided continuous support to art and live operations teams, ensuring consistent delivery of impactful updates that improved player experience. Created internal tools and wrote technical guides to streamline assets authoring.

TECHNOLOGY STACK

`Unity 3D Engine` `C#`
`HLSL` `OpenCL`
`Shaders` `Android, iOS`
`RenderDoc`

- Introduced improvements to the performance metrics telemetry system. Removed technical limitations, enabling the team to identify and promptly fix performance issues.
- Led efforts to improve development practices within the team, driving enhancements to version control workflows, establishing a formal code review process, and creating a knowledge base of technical documentation.
- Worked on asset build pipeline optimizations to circumvent memory and bandwidth limitations of low and mid range devices.

SAMSUNG ELECTRONICS
SENIOR SOFTWARE ENGINEER II
2018/03 - 2019/05
1 Years, 2 Months

Focused on researching real-time rendering algorithms for Virtual and Augmented Reality (VR/AR) applications. My role involved scoping, planning, prototyping, and developing features for both experimental and commercialised products. The team was awarded the 'project of the year' bronze award for our work on AR Emoji which was included in all Samsung Galaxy phones starting with the Galaxy S10.

TECHNOLOGY STACK

`Unity 3D Engine` `C#`

- Researched point cloud rendering. Developed a low footprint point splatting algorithm suitable for mobile devices.

- Designed a novel, low footprint light estimation technique to achieve seamless fusion of virtual objects with real-world environments.
- Researched real-time skin shading algorithms and implemented a screen space technique for Samsung's AR Emoji application.
- Developed several features for Samsung's AR Zone application, including procedural geometry generation and shaders for AR Doodle.

SAMSUNG ELECTRONICS
SENIOR SOFTWARE ENGINEER
2016/02 - 2018/03
2 Years, 1 Months

Joined as a member of the device ecosystem solutions team, developing vendor software for Samsung Galaxy phones. Worked on features and improvements for the next generation of flagship devices. I then transitioned to the computer graphics group, where I focused on supporting research and development initiatives. In this role, I specialized in exploring the state of art in rendering, evaluating feasibility and implementing cutting-edge technologies for flagship devices, with particular emphasis on high-performance real-time rendering tailored to virtual and augmented reality.

TECHNOLOGY STACK

Android · C++ · OpenGL · GLSL · Python · Beautiful Soup

- Lead a small team of engineers developing an AI driven, device recommendation solution based on phone usage profile.
- Researched and prototyped state of the art algorithms for omnidirectional stereo rendering in VR environments.
- Designed and prototyped an innovative method for reconstructing stereoscopic views using pre-rendered monoscopic content.
- Explored a wide range of VR rendering techniques targeting the Samsung VR platform, including stereoscopic video encoding, real-time foveated imaging, and 3D geometry reconstruction.

BOHEMIA INTERACTIVE SIMULATIONS
C++ PROGRAMMER
2013/08 - 2016/01
2 Years, 5 Months

Supported the development of VBS Tactics, where I played a key role in advancing the project through both technical direction and hands-on development. As a member of a small, agile team, I worked on the initial prototype, which laid out the foundation for the project's direction. After a successful product pitch to leadership, the team grew and I transitioned into the role of lead developer for the server component, where I was responsible for overseeing server-side architecture, designing communication protocols and ensuring a seamless integration with the game engine and the web frontend.

TECHNOLOGY STACK

VBS Engine · OpenGL · GLSL · HTTP · TCP · UDP · Protobuffers · REST API · Services

- Worked within a small R&D team to prototype VBS tactics. Following its successful pitch, I took ownership of the server component as a lead developer seeing the product all the way through to its commercial release.
- Designed and implemented a VBS extension to interop OpenGL API calls with the engine's DirectX context to allow support for rendering legacy HUD elements for a fighter aircraft simulator.

HEADSTRONG GAMES
ASSOCIATE PROGRAMMER
2013/02 - 2013/06
4 Months

Worked on Pokémon Art Academy for the Nintendo 3DS, with a focus on creating an immersive experience that utilizes the platform's distinctive features, dual screens and stylus input. Collaborated closely with a multidisciplinary team of developers, artists, and producers to design and implement core gameplay mechanics, visual effects, and an intuitive interface that empowers players of all skill levels to easily create and share digital artwork. Assisted in optimizing game performance to deliver a smooth and responsive user experience.

TECHNOLOGY STACK

C++ · N3DS Devkit · Audio · UI/UX · Particle Systems · Multi-threading

- Designed and implemented multiple gameplay and front-end components, including particle-based effects for UI interactions.
- Contributed enhancements in the game engine, improving performance and optimizing hardware resources utilization.
- Developed multithreaded I/O solutions for efficient saving and loading of player progress data.
- Created a prototype audio engine with a streamlined interface for decoding and playback of music and sound effects.