Thomas Carey

https://github.com/tmcarey

https://thomasmichaelcarey.com/

631-742-8441

thomas@thomascarey.us

B.A., Computer Science

Carnegie Mellon University

Graduate May 2023

Awards and Accomplishments

Partner for the Future

One of 11 students on Long Island selected to participate in research in Computer Science and Neuroscience at the Cold Spring Harbor Laboratory.

Teaching Assistant

Wrote and Delivered a new course on Data Structures at Cold Spring Harbor High School as an attending senior.

Skills

Games and Graphics: Unity, Unreal, Shaders, Ray Tracing

Mathematics: Vector Analysis, Linear Algebra, Algorithm Analysis

Programming:, C++, C#, GLSL, SQL, JavaScript, Algorithm Optimization, Data Structures

Communication: Presentations, Team Meetings, Technical Writing

Art and Design: UI Design, Blender (Modeling, Animation, Rigging), Photoshop, Illustrator

Other

Volunteer Firefighter

Respond to Fire and Rescue calls in the Cold Spring Harbor community.

Experience

Personal Game Development and Graphics Research

- Created games and game technology prototypes throughout high school.
- Developed an active ragdoll framework for action games in Unity.
- Created a custom ray-traced, voxel game engine based in OpenGL.
- Built VR prototype games focused on perceived object weight and motion.

Game Programming and Design

Horizon Blockchain Games / Aug 2021 - Oct 2021

- Created a cutscene and key-frame animation system which allowed designers to easily edit dynamic cutscenes and enabled video-like seeking for viewers.
- Worked directly with designers to refine cutscene assets and created new shaders to implement visual effects.
- Improved quality of life for players by solving bugs, refactoring, and implementing new features in the game's animation scheduler and turn manager.

Research

Carnegie Mellon University / Sep 2021 - Present

- Work with the Geometry Collective to solve novel mathematics and geometry problems in Computer Graphics using vector analysis.
- Update the open-source 3D data analyzer Polyscope in Python and C++.
- Contribute my programming experience to help fellow researchers.

Cold Spring Harbor Laboratory / Sep 2017 – Feb 2018

- Modeled neurochemistry of learning behavior of live mice using machine learning on acetylcholine measurements..
- Presented my findings on the effects of repetition on learning rate in a formal talk to the CSH Science community.
- After graduation I was called back to the Kepecs lab to contribute my programming abilities to a web-based psychometry platform which resulted in multiple successful and large-scale projects.

Project Manager and Lead Developer

We Connect the Dots / Dec 2020 – Present

- Lead a team of 8-10 developers to build a new to market educational SaaS venture designed to diversify revenue to the organisation and provide a fun and collaborative learning and testing platform.
- Lead meetings several times a week to manage the project and its developers using Azure DevOps to track and distribute tasks.
- Responsible for all major backend and frontend decisions, designed the entire database and API schema as well as majority contributor of the code itself.

Full Web Stack Consultant

Workrails, Inc. / Jun 2019 – Dec 2019

- Designed and built the company's first Salesforce integration, made a significant impact on the company's market value.
- Worked directly with customers to improve customer success by implementing custom logic to fulfill each customer's needs.
- Designed schema for secure authentication with enterprise customers.

My name is Thomas Carey; I am a student at Carnegie Mellon University in the School of Computer Science. I am writing to apply for the Rendering Programmer Internship at Epic Games. I have been an admirer and user of Unreal Engine since early high school, and have always been interested in working with computer graphics in games professionally. I am a skilled programmer with unique experience working in professional programming environments and large code bases, as well as building my own graphics projects. I believe I have the passion, skills, and work ethic to make me an excellent candidate for this position.

I have an intense passion for computer graphics and have worked with simulations and rendering technology in my own free time for several years. Since I was 12 years old I have experimented with modifying and making games. I have worked on multiple games in Game Jams and explored various algorithms and concepts in game physics and rendering which interested me. In Unity I built a framework for simulating active ragdolls in VR action games, and using OpenGL I implemented a voxel ray tracing game engine using a white paper on a Sparse Voxel Octree model I found in an NVIDIA paper from 2010. When I came to Carnegie Mellon I realized a lot of the simulation work I was really interested in was already taking place in academia, and now I work with the Geometry Collective to help with research in geometry processing and I contribute to their open source 3D data visualizer Polyscope. Looking forward, I'm especially interested in exploring new solutions to real-time mesh deformation and creation, in particular finding ways to allow players to manipulate and create their own geometry.

I've worked in remote professional software development environments for many years now, which has given me a head start in learning large code bases, writing safe, professional, and readable code, and working with teams of other developers. At Horizon Games, Workrails, and most recently with my work at Polyscope I was able to gain a solid grasp of the structure of their code and start making useful changes within a day of my work there. Each work experience has presented me with large-scale problems that require the help of other developers. My work at We Connect the Dots in particular required making the most of tools like Github and Azure DevOps to translate visions for new features from both the design and marketing teams into tasks that could be efficiently completed by our programmers.

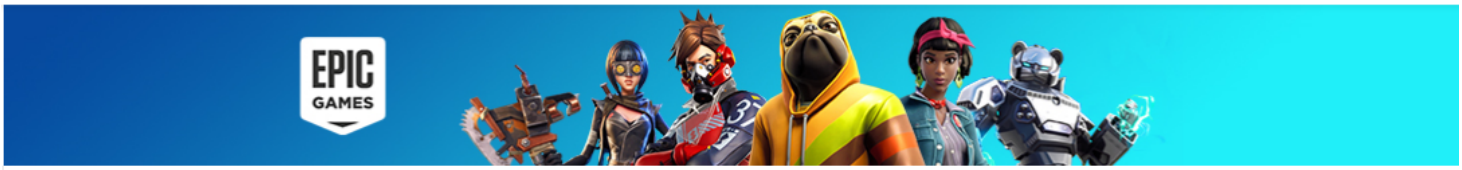
I'm a very self-motivated person, and everywhere I go I try to go above and beyond what is asked of me. In high school, I was a teaching assistant in our computer science program. In my senior year, I helped write and deliver a new course designed to provide advanced work beyond the traditional AP track. At my first official job as a web developer at a local startup Workrails, I started as an intern. The company needed to integrate some of their customer's sites with Salesforce, and had originally asked a freelance developer to do it. After that developer failed to deliver, I offered to help, and a few days later I had built the company's first full integration with salesforce by embedding our React application in a custom salesforce page. This quickly became a core selling point for the company and directly impacted its value and marketability. Since then, I have always tried to bring a broader perspective to my work by finding ways to optimize workflows and building software that is as flexible and shareable as possible. I believe I can bring that enthusiasm to Epic Games and make a significant contribution to the technology in the Unreal Engine.

I believe that my proximity to the mathematics and algorithms of rendering, my experience in large and professional programming environments like that of Epic Games, and my unique passion and energy towards the field of computer graphics and game technology make me a valuable candidate. I would be extremely excited to work on a project that is as influential, ambitious, and committed to pushing beyond what is possible as Unreal Engine.

Thank you,

Thomas Carey

631-742-8441 - thomas@thomascarey.us



Rendering Programmer Internship [Fall 2021]

Cary, NC

Stockholm, Sweden

Apply

Posted 30+ Days Ago

Full time

R4355

Epic Games Unreal Engine Rendering Features Team is looking for a smart, creative Rendering Programmer Intern to join them Fall 2021. Our Interns are given challenging projects over the work term, and are provided with a meaningful experience with high expectations for performance. If you want to build something Epic, this is the opportunity for you!

Rendering Features Team is responsible for driving the enhancements and new graphics features of Unreal Engine as well as continuous improvements to graphics quality. We regularly publish novel research in the field and are at the forefront of advancements in real-time graphics. You will work directly with the industry veterans and your work will reach hundreds of the engine licensees in various industries.

Responsibilities:

- Working closely with the Unreal Engine Rendering team, contributing innovative and original ideas towards all aspects of graphics rendering development
- Enhancing and maintaining the graphics of Unreal Engine
- Working on material and lighting improvements
- Working closely with artists to iterate on features based on their feedback

Qualifications:

- Bachelor or Advance Degree work in CS or related field with focus on rendering or image synthesis
- Demonstrable strength in C++
- In-depth experience with real-time rendering
- Knowledge and application of 3D math, rendering algorithms, and data structures
- Experience with writing shaders and using graphics API like DirectX or Vulkan
- Performance minded development and optimization skills
- Strong communication and follow-through working with others to develop and iterate on features/tools
- Examples of projects in computer graphics or game engine technology

This is a remote paid internship for Fall 2021. Recruitment will be ongoing until teams find an ideal match. For more information about Epic Internships, visit Epicgames.com/students.
This is going to be Epic!

Epic Games deeply values diverse teams and an inclusive work culture, and we are proud to be an Equal Opportunity employer. Learn more about our Equal Employment Opportunity (EEO) Policy here.

Apply

About Us

Founded in 1991, Epic Games is a leading interactive entertainment company and provider of 3D engine technology. Epic operates Fortnite, one of the world's largest games with over 350 million accounts and 2.5 billion friend connections. Epic also develops Unreal Engine, which powers the world's leading games and is also adopted across industries such as film and television, architecture, automotive, manufacturing, and simulation.

Through Unreal Engine, Epic Games Store, and Epic Online Services, Epic provides an end-to-end digital ecosystem for developers and creators to build, distribute, and operate games and other content. Epic has over 40 offices worldwide with headquarters in Cary, North Carolina.

All Positions

Don't see the role you're looking for? Join our Talent Community!