

Sahil Ramani

SENIOR SOFTWARE ENGINEER • 3D SIMULATION

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Summary

An avid graphics programmer and machine learning practitioner, I bring more than 12 years of comprehensive experience, with a significant focus of 9 years in the video game industry and over 4 years in leadership roles driving research and development initiatives. My expertise lies at the intersection of machine learning and real-time graphics, and I excel at building user-friendly software that delivers high-quality results. I am passionate about developing innovative solutions that push the boundaries of what's possible with technology, and I'm always eager to take on new challenges.

Skills

Machine Learning	NeRF, Gaussian Splatting, CNNs, Neural Rendering, PyTorch, TensorFlow
Game Engines	Unity3D, Unreal Engine, Godot, several proprietary engines
Graphics	HLSL, GLSL, DirectX, OpenGL
Programming Languages & Frameworks	C#, C, C++, Python, XAML, C++/Cli, Bash Scripting
Version Control	Perforce, Git, SVN, Mercurial, Unity Version Control (Plastic SCM)

Work Experience

Zoox Inc

Foster City, CA

SENIOR SOFTWARE ENGINEER

July 2023 - Present

- Developed **3D Simulation and Synthetic Data** generation tools, boosting Zoox model performance by over 20%.
- Engineered frameworks for **dataset quality** evaluation using **ML and statistical approaches**, enhancing data integrity.
- Led projects to create realistic simulated worlds, employing state-of-the-art technologies like **NeRF, Gaussian Splatting**, and related techniques.

Unity Technologies

Seattle, WA, USA

SENIOR SOFTWARE ENGINEER / SOFTWARE ENGINEERING MANAGER

Aug. 2019 - July 2023

- Developed a Unity extension using **Neural Rendering** to dynamically transform game visuals, featured in the Beta teaser for the future of **Unity AI**.
- Significantly enhanced **machine learning efficiency** by designing **custom GPU kernels & operations**, which streamlined both training and inference processes, reducing overhead and accelerating performance.
- Led a team of engineers** in pioneering research to leverage machine learning for superior game lighting and rendering.
- Implemented high-performance, **GPU-accelerated tile-stitching** for Unity's terrain system with zero latent allocations.
- Patent 18/144,734**: System and Method for Interactive Asynchronous Tile-Based Terrain Generation

Crystal Dynamics

Redwood City, CA, USA

ENGINE LEAD, FUTURE PROJECTS / SENIOR SOFTWARE ENGINEER

Nov 2014 - Aug 2019

- Directed R&D efforts at Crystal Dynamics, **leading engine and tool technology advancements** for next-gen games.
- Engineered a groundbreaking **graph-based blendshape control system** from Maya to game, pivotal for Hulk's transformation in Marvel's Avengers.
- Dramatically increased editor and rendering performance, achieving over 20x and 2x improvements respectively within two years.
- Patent #11189068**: Macro-based electronic map editing.

Dreamworks Dedicated Unit

Bengaluru, Karnataka, India

SOFTWARE APPLICATIONS ENGINEER, ANIMATION & RIGGING TOOLS

Mar 2013 - Oct 2014

- Contributed to the R&D team at DreamWorks Animation, developing award-winning **animation and rigging tools** used in over four animated films.

Microsoft Corporation

Redmond, WA, USA

SOFTWARE DEVELOPMENT ENGINEER IN TEST, XBOX GRAPHICS

July 2011 - Oct 2012

Nokia Research Center

Santa Monica, CA, USA

RESEARCH INTERN, MOBILE EXPERIENCES

May 2010 - July 2010

Yahoo! Software Development India

Bengaluru, Karnataka, India

SENIOR SYSTEMS ENGINEER / SYSTEMS ENGINEER

July 2006 - July 2009

Education

Masters of Science in Computer Science, Game Development

Los Angeles, CA, USA

UNIVERSITY OF SOUTHERN CALIFORNIA

Aug 2009 - May 2011

Bachelor of Engineering, Computer Science

Bengaluru, Karnataka, India

BMS COLLEGE OF ENGINEERING

Aug 2002 - June 2006