

Sahil Ramani

SENIOR SOFTWARE ENGINEER • 3D SIMULATION

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Summary

Experienced graphics programmer and Machine Learning practitioner with 12+ years in the field, including 9 years in video games and 4+ years leading R&D teams. Specializing in the intersection of machine learning and real-time graphics, I focus on creating intuitive software that delivers high quality results. I'm driven to innovate and expand technological boundaries, eagerly embracing new challenges.

Skills

| | |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------|
| 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 |
| Machine Learning | NeRF, Object Reconstruction, Gaussian Splatting, Convolutional Neural Networks, Neural Rendering |
| 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 / 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.
- Enhanced **cache handling and paging** designs, boosting editor performance by 25%.

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