

Sahil Ramani

SENIOR SOFTWARE ENGINEER · 3D SIMULATION, RECONSTRUCTION & SYNTHETIC DATA

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Summary

With 12 years of software development experience, including 9 years in graphics and game development, I excel at building user interfaces, tools and workflows that deliver high-quality results with minimal user effort. 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

Game Engines	Unity3D, Unreal Engine, several proprietary engines
Programming Languages & Frameworks	C#, C, C++, Python, XAML, Qt
Version Control	Perforce, Git, SVN, Mercurial, Unity Version Control (Plastic SCM)
Graphics	HLSL, GLSL, DirectX, OpenGL

Work Experience

Zoox Inc

Foster City, CA

SENIOR SOFTWARE ENGINEER, 3D SIMULATION, RECONSTRUCTION AND SYNTHETIC DATA

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, NEURAL RENDERING & ML ARTISTRY / SOFTWARE ENGINEERING MANAGER, ML LIGHTING & RENDERING

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**.
- Collaborated with **Lighting & Rendering** teams to shape the roadmap for **ML-enhanced workflow** improvements.
- Enhanced Unity editor workflows for artists and technical artists, achieving an 80% efficiency gain in managing **large game worlds through ML**.
- 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, ENGINE & TOOLS

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.
- Prototyped a **real-time collaborative editing** feature for game worlds, facilitating efficient teamwork and creative synergy.
- 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