# Sahil **Ramani**

SENIOR SOFTWARE ENGINEER · 3D SIMULATION

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## Summary

As an accomplished software developer with over 12 years of experience, including 4 years of specialization in machine learning, I have a proven track record of leading teams focused on R&D projects. Lately, I have been augmenting my expertise in machine learning, quantitative analysis, and algorithms to develop real-time trading strategies, utilizing my talents to create trading software during my free time. 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

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| **Programming Languages & Frameworks** | C#, C, C++, Python, Bash Scripting |
| **Machine Learning** | NeRF, Object Reconstruction, Gaussian Splatting, Convolutional Neural Networks, Neural Rendering |
| **Version Control** | Perforce, Git, SVN, Mercurial |

## 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*

### 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*

### Udacity — *Online*
NANODEGREE, AI FOR TRADING — *Jun 2021 - May 2022*

NANODEGREE, DEEP LEARNING — *Jun 2020 - Oct 2020*