

Aaryaman Vasishta

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INTERESTS

Light Transport Simulation • FOSS
Machine Learning • Real-Time Rendering

EDUCATION

UNIVERSITY OF TOKYO

**MASTERS IN INFORMATION SCIENCE
AND TECHNOLOGY**

Tokyo, JP

Computer Graphics Group

Advisor: Toshiya Hachisuka

Expected Graduation March 2021

GPA: 3.83

PUNE UNIVERSITY

BE IN COMPUTER ENGINEERING

2012-2016 | Pune, IN

First Class with Distinction

Pune Institute of Computer Technology

LINKS

Github:// [jamm](#)

BitBucket:// [jamm](#)

Quora:// [Aaryaman-Vasishta](#)

COURSEWORK

Realistic Image Synthesis

Computer Graphics

Multithreaded and Distrib. Computing

Algorithms and Data Structures

Advanced Operating Systems

Special topics in HCI

SKILLS

PROGRAMMING

• C • C++ • Python • MATLAB • Lua

• Bash • x86 Assembly • Kotlin

VERSION CONTROL

Git • Perforce

TOOLS

vim • Visual Studio • Singularity

DirectX • SLURM • MySQL • Jupyter

Cassandra • Kubernetes • Docker

OPEN SOURCE

GOOGLE SUMMER OF CODE

Student in 2015 and 2016 for WineHQ

Mentor in 2018 for WineHQ

MISC. OSS CONTRIBUTIONS

Mitsuba 2 • nouveau • ScummVM

Chromium • Point Cloud Library

Appleseed • Zandronum

EXPERIENCE

RAKUTEN INSTITUTE OF TECHNOLOGY RESEARCHER | TOKYO, JAPAN

July 2018 – March 2019

- Research and implementation of soft-segment background removal of e-commerce product pictures using deep learning.

RAKUTEN | SOFTWARE ARCHITECT/LEAD ENGINEER | TOKYO, JAPAN

October 2016 – March 2019

- Awarded for being among the top 1% of the Technology Division employees.
- Mentored and onboarded new engineers and interns from University of Waterloo and other Canadian universities. Setup of training projects and relevant infrastructure which were later deployed into production.
- Designed, developed and deployed large scale, zero-downtime, cloud-native core ecosystem services utilizing **Kubernetes** and **Cassandra** serving **billions** of requests daily. Security and efficiency **savings of ¥12 million annually**.
- Setup private interconnect between Rakuten and GCP. Implemented cloud security best practices and MFA for all users using hardware keys.
- Weekly department-wide code and security reviews ensuring compliance with best practices while promoting **Inner Sourcing** techniques.
- Deployed Kong API gateway across multiple regions & wrote Lua plugins for it.

UBISOFT | INTERN GAMEPLAY PROGRAMMER, PUNE STUDIO

January 2016 – May 2016

- Worked on gameplay and engine layers on fixing flaky issues during porting and remastering of the AAA title **South Park™: The Stick of Truth™** to the **PS4** and **Xbox One**.

PROJECTS

PATH TRACER | PHYSICALLY BASED RENDERER USED FOR RESEARCH

2019 - Present

- Cross-Platform and Written from scratch using C++17.
- Current features: Live preview, multi-threaded rendering, Parallel SAH BVH. Integrators: Path Tracing with Next-Event-Estimation, MIS, PSS-MT, PRT using Spherical Harmonics
- BSDFs supported: Diffuse, Phong, Rough conductor using GGX/Beckmann microfacet model, Dielectric and Metal.

WINEHQ | OPEN-SOURCE COMPATIBILITY LAYER FOR RUNNING

WINDOWS PROGRAMS ON POSIX-COMPLIANT OS'S

2015 - Present

- Re-implemented Microsoft's Direct3D Retained Mode, a 3D scene graph API in C resulting in **improved compatibility** across legacy applications and games. Contributions included in Valve's Proton layer for Steam on Linux.
- Wrote tests against Microsoft's undocumented API while adhering to **black-box reverse engineering** methodology.

GLSL-SANDBOX PLAYER | KOTLIN PORT OF GLSLSANDBOX

2017

- Written using LWJGL and GLSL. Supports all shaders from glslsandbox.com.

SCHOLARSHIPS & AWARDS

2019-2020 JASSO - Monbukagakusho Honors Scholarship

2017 Rakuten New Graduate Award