

Aritra Bhakat

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Education

- Aug 2022–Dec 2024 **Master's Programme in Computer Science, *Visualisation and Interactive Graphics Track***, KTH Royal Institute of Technology, Stockholm
- Aug 2019–Dec 2024 **Degree Programme in Engineering Physics**, KTH Royal Institute of Technology, Stockholm
GPA 4.75/5
- Jul 2022–Nov 2022 **Exchange Studies, *Computer Science***, University of Melbourne, Melbourne
81.5% WAM

Work experience

- 2021–Present **Technical support, part time**, PrBh Redovisningsbyrå AB, Stockholm
Roles:
 - Technical support
 - Implementing solutions to automate accounting workflow
 - Building and maintaining website
- Summer 2020 **Summer research project**, NORDITA, Stockholm
 - Implemented an interactive visualisation for time-dependent data from an asteroid erosion simulation.
 - Visualisations were published in the resulting paper.

Skills

Languages	C++, C#, Java, Javascript, GLSL, HLSL	Graphics APIs	OpenGL, Vulkan
GPGPU	CUDA, Compute shaders	Scripting	Python, MATLAB
Parallel/distributed	MPI, OpenMP	Misc/software	Git, Bash, CMake, COM-SOL, Unity, Unity XR

Projects

- Feb 2024–Dec 2024 **Master thesis: Approximate Opacity Optimisation**, *C++*, *OpenGL*, *GLSL*
Implemented a visualisation algorithm which helps reveal important data in dense 3D geometry. Used approximation methods to improve performance.
- Nov 2024–Feb 2024 **Vulkan Path Tracer**, *C++*, *Vulkan*, *GLSL*
Physically based path tracer in Vulkan utilising hardware accelerated ray tracing. Implemented multiple importance sampling, with direct light sampling and material BSDF sampling for faster convergence. Implemented a comprehensive material model.
- May 2023 **Soft Body Simulation**, *Unity*, *C#*, *HLSL*
A GPU soft body simulator. Implemented in compute shaders using the XPBD method, with graph colouring to cluster independent constraints.
- Nov 2023–Jan 2024 **Isosurface renderer with implicit kD-trees**, *C++*, *OpenGL*, *GLSL*
An isosurface renderer using implicit kD-tree to skip space and quickly evaluate intersections, implemented on the GPU.

Volunteering

Djurgårdens IF Cricketförening, *Cricket club*, Stockholm

- Board member
- Youth section: coaching, organising tournaments, applying for grants, administration
- Senior teams: running training sessions, captaining the 1st XI team, organising equipment orders

Languages

Swedish, English, Bengali