

# Aritra Bhakat

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Huddinge – Stockholms län – Sweden

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🌐 [arrebarritra](#) • **in** [aritra-bhakat](#)

## 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, Australia  
81.5% WAM

## Work experience

- 2021–Present **Technical support, part time**, PrBh Redovisningsbyrå AB, Stockholm  
Roles:
  - Technical support with accounting and other software
  - Implementing solutions to automate accounting workflow
  - Building and maintaining company 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

<b>Languages</b>	C++, C#, Java, Javascript, GLSL, HLSL	<b>Graphics APIs</b>	OpenGL, Vulkan
<b>GPGPU</b>	CUDA, Compute shaders	<b>Scripting</b>	Python, MATLAB
<b>Parallel/distributed</b>	Slurm, MPI, OpenMP	<b>Misc/software</b>	Git, Bash, CMake, Unity, Nsight, COMSOL

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## 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, using approximation methods to improve performance. Resulted in a contribution to the Inviwo open source project.
- 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, using 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.
- Sep 2023–  
Oct 2023 **Rolling Reactions VR**, *Unity*, *C#*, *SteamVR*  
A 5 person group project: VR experience where the player moves in a wheelchair and performs chemistry experiments. I implemented wheelchair interaction and physics, and helped integrate the fluid simulation

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## Volunteering

- 2019–Present **Djurgårdens IF Cricketförening**, *Cricket club*, Stockholm
- Board member
  - Youth section: coaching U15 and U19 teams, organising tournaments, applying for grants, administration
  - Senior teams: running training sessions, captaining the 1st XI team, organising equipment orders
- Nov 2022–  
Feb 2023 **Brunswick CC**, *Cricket club*, Melbourne, Australia
- Coaching in the *Woolworths Cricket Blast* U10 programme

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## Languages

- Fluent Swedish, English, Bengali  
Basic French, Hindi