

# CHRISTOPH NEUHAUSER

 [github.com/chrismile](https://github.com/chrismile)  [chrismile.net/about](https://chrismile.net/about)

## Education

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**Technical University of Munich (TUM)** **Jan. 2021 – Feb. 2025**  
*Dcotorate (Dr. rer. nat.), Ph.D. Student at Chair of Computer Graphics and Visualization* *Munich, Germany*

- Passed with highest honors (summa cum laude)
- Thesis: “High-Quality and Scalable Visualization of Model Parameter Sensitivities and 3D Spatial Correlations”

**Technical University of Munich (TUM)** **Apr. 2019 – Oct. 2020**  
*M.Sc. Informatics (final grade 1.0, passed with high distinction)* *Munich, Germany*

- Thesis title: “Opacity-based Rendering of Hexahedral Meshes and Principle Stress Lines”

**Technical University of Munich (TUM)** **Oct. 2015 – Mar. 2019**  
*B.Sc. Informatics (final grade 1.3, passed with distinction)* *Munich, Germany*

- Thesis title: “Opacity-based Rendering of Large Trajectory Datasets with Pixel Synchronization”
- Switched study program from “B.Sc. Informatics: Games Engineering” to “B.Sc. Informatics“ in 2017

**Hertzhaimer-Gymnasium Trostberg** **2007 – 2015**  
*Abitur (university entrance qualification, final grade 1.0)* *Trostberg, Germany*

**Heinrich-Braun Elementary School** *Trostberg, Germany, 2003 – 2007*

## Experience

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**Intel Deutschland GmbH** **Mar. 2025 – now**  
*GPU Software Optimization Engineer* *Munich, Germany*

- Performance optimization of software for Intel hardware and porting of applications from OpenGL to Vulkan.

**Technical University of Munich (TUM)** **Jan. 2021 – Feb. 2025**  
*Researcher* *Munich, Germany*

- Full-time researcher with teaching duties at TUM while pursuing the PhD degree.
- Worked on 9 publications in the areas of computer graphics, data visualization and deep learning.
- For more details see: [chrismile.net/about/#publications](https://chrismile.net/about/#publications)

**RIKEN Center for Computational Science (R-CCS)** **Feb. 2024 – Apr. 2024**  
*Visiting Researcher* *Kobe, Japan*

- Collaboration with Prof. Takemasa Miyoshi from RIKEN on efficient visualization of 3D spatial correlations in meteorological data using deep learning and GPGPU computing with CUDA, PyTorch and Vulkan.

**Technical University of Munich (TUM)** **02/2019 – 08/2019, 03/2020 – 05/2020, 11/2020 – 12/2020**  
*Student Research Assistant, Chair of Computer Graphics and Visualization* *Munich, Germany*

- Research in the area of realtime computer graphics and scientific visualization.

**Technical University of Munich (TUM)** **Sep. 2019 – Feb. 2020**  
*Student Research Assistant, Chair of Geometry and Topology, Faculty of Mathematics* *Munich, Germany*

- Extension of mathematical content creation framework [CindyJS](#) to support stereoscopic 3D, output on virtual reality headsets and finger tracking using a LeapMotion device.

## Projects

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### Contributions to Open Source Projects

- Contributions to projects such as [SPIRV-Reflect](#), [vcpkg](#) (1, 2, 3, 4, 5), [SDL](#), [MSYS2](#), [CindyJS](#), [Limbo](#) (1, 2).

### Visualization of 3D Scientific Data on GPUs | C++, Vulkan, CUDA, Python, PyTorch, OpenGL, cuSPARSE

- Visualization of 3D line data: [github.com/chrismile/LineVis](https://github.com/chrismile/LineVis)
- Visualization of 3D correlation fields: [github.com/chrismile/Correrender](https://github.com/chrismile/Correrender)
- Visualization of hexahedral meshes: [github.com/chrismile/HexVolumeRenderrer](https://github.com/chrismile/HexVolumeRenderrer)

### 3D Gaussian Splatting for Medical Data | C++, Vulkan, Rust, WebGPU, Python, PyTorch

- Project page: [keksboter.github.io/cinematic-gaussians](https://keksboter.github.io/cinematic-gaussians), path tracer: [github.com/chrismile/CloudRendering](https://github.com/chrismile/CloudRendering)

## Technical Skills and Languages

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**Languages:** C++, Python, C, Rust, HTML/CSS, JavaScript, SQL, PHP

**Technologies/Frameworks:** Vulkan, OpenGL, WebGL, WebXR, WebGPU, D3D11, PyTorch, CUDA, Qt, CMake, SciPy, NumPy, cuBLAS, cuSPARSE, CUDA WMMA Tensor Core API, OpenCL, OpenMP, MPI

**Natural languages:** German (native), English (fluent), Japanese (intermediate)

## Extracurricular

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**Evangelische Studentenwohnheime München e.V.**

*Student co-management of dormitories, network administrator*

**2015 – 2021**

*Munich*