David Bauer

Machine Learning Researcher · Meta

Research scientist with +5 years of experience in deep learning, neural rendering, radiance fields, and real-time graphics. Strong research background in scientific and immersive visualization and volume rendering with multiple first-author journal publications at top venues.

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SKILLS

Deep Learning
PyTorch, TensorFlow, Python, Docker

Graphics & GPGPU
C/C++, CUDA, OptiX, HLSL/Slang, GLSL, Metal, OpenGL, VDB, USD, glTF

VR / Visualization / Other
OpenVR, Unity, Unreal, Blender, VRTK, VTK, WebVR, JavaScript, React, D3

EDUCATION

Ph.D. in Computer Science
University of California, Davis
2019–2025

Visiting Scholar
Tokyo Institute of Technology
July 2018

B.Sc. in Computer Science
Vienna Technical University
2016–2018

PROJECTS

Stage
A Universal 3D Scene Parser with Support for PBRT, USD, glTF, FBX, OBJ, and More

Fabulous Ray Tracer
Multi-platform GPU Path Tracer

Open Volume Renderer
Scientific Volume Renderer for DVR and Real-Time Path Tracing

REVIEWER

IEEE TVCG
IEEE VIS
IEEE PacificVis
Eurographics
Pacific Graphics
Supercomputing
Journal of Supercomputing

WORK EXPERIENCE

Meta — **April 2025 – current**
Research Scientist
Research on cutting-edge deep learning techniques and large-scale machine learning systems.

Disney Research Studios — **Jun 2023 – Sep 2023**
PhD Research Intern
Conducted research into advanced methods for neural path guiding via neural parametric representations.

Intel Corporation — **Jun 2021 – Jun 2023**
PhD Research Intern
Contributed to the Open Image Denoise project for ray-traced frame sequences using deep convolutional neural networks.

Image Biopsy Lab — **2018 – 2019**
Researcher and Developer
Neural prediction and visualization of degenerative bone diseases.

Centre for Visual Analytics - CVAST — **2012 – 2013**
Research Assistant
Visualization of temporal data for clinical applications.

FIRST-AUTHOR PUBLICATIONS

Photon Field Networks for Dynamic Real-Time Volumetric Global Illumination
2023, IEEE TVCG, doi:10.1109/TVCG.2023.3327107
Caching photon trace radiance using neural networks for accelerated volume path tracing.

FoVolNet: Fast Volume Rendering using Foveated Deep Neural Networks
2022, IEEE TVCG, VIS 2022 Best Paper Honorable Mention Award, doi:10.1109/TVCG.2022.3209498
Real-time rendering of sparsely sampled volume datasets using deep learning assisted denoising and in-painting.

A Multi-Layout Design For Immersive Visualization of Hierarchical Network Data
2021, IEEE ISMAR, 10.1109/ISMAR62088.2024.00120
Introduction and evaluation of novel visual representations and interactive layouts for graph visualizations in VR.

A Comparison of the Fatigue Progression of Eye-Tracked and Motion-Controlled Interaction in Immersive Space
2021, IEEE ISMAR, doi:10.1109/ISMAR52148.2021.00063
An investigation of the fatigue behavior of different interaction techniques in VR.