Ben Mildenhall

Contact Information

San Francisco, CA

me@bmild.com
bmild.github.io

Education

University of California, Berkeley 2015 – 2020

Ph.D. in Computer Science
Advised by Prof. Ren Ng

Stanford University 2011 – 2015

B.S. in Computer Science (Honors) and Mathematics

Experience

World Labs, Cofounder Jan 2024 – present

Building foundation models for spatial intelligence.

Google, Research Scientist Jan 2021 – Dec 2023

Working in David Salesin's group.

Fyusion Inc., Research Intern Summer 2018

Worked with Rodrigo Ortiz-Cayon and Abhishek Kar on deep learning for view synthesis.

Google, Research Intern Summer 2017

Worked in Marc Levoy's group with Robert Carroll, Jiawen Chen, Dillon Sharlet, and Jon Barron on deep learning for multi-image denoising and demosaicking.

Pixar Animation Studios, Research Intern Summer 2014

Worked with Tom Duff, Nelson Max, and Mark Meyer on using sparse voxel octrees for geometry simplification when rendering complex scenes.

Stanford University, Undergraduate Research Intern (CURIS program) Summer 2013

Worked in Pat Hanrahan's group with graduate students Daniel Ritchie and Matt Fisher on using probabilistic inference for reinforcement learning.

Honors and Awards

SIGGRAPH Significant New Researcher Award	2025
ICLR Outstanding Paper Award	2023
CVPR Best Student Paper Honorable Mention	2022
CACM Research Highlight	2022
ACM Doctoral Dissertation Award Honorable Mention	2021
ICCV Best Paper Honorable Mention	2021
David J. Sakrison Memorial Prize	2021
Outstanding Graduate Student Instructor Award	2021
ECCV Best Paper Honorable Mention	2020
ICCP Best Demo	2017
Tong Leong Lim Pre-Doctoral Prize, UC Berkeley	2017
Fannie and John Hertz Foundation Graduate Fellowship	2015
Terman Award, Stanford University	2015
Sterling Award, Stanford University	2015
CS348B rendering competition Grand Prize, Stanford University	2013

Service

Area Chair for CVPR 2023, 2024
Outstanding reviewer award for ECCV 2022
Reviewer for CVPR, ICCV, ECCV, SIGGRAPH, SIGGRAPH Asia, NeurIPS

Co-instructor, CS184 (Computer Graphics)	Summer 2020
Graduate Student Instructor, CS184	Spring 2017
Graduate Student Instructor, CS184	Spring 2016

Publications / Preprints

NeRF-Casting: Improved View-Dependent Appearance with Consistent Reflections
Dor Verbin, Pratul Srinivasan, Peter Hedman, Benjamin Attal, **Ben Mildenhall**, Richard Szeliski, Jonathan T. Barron
SIGGRAPH Asia, 2024

Flash Cache: Reducing Bias in Radiance Cache Based Inverse Rendering
Benjamin Attal, Dor Verbin, **Ben Mildenhall**, Peter Hedman, Jonathan T. Barron, Matthew O'Toole, Pratul P. Srinivasan
ECCV, 2024 (oral)

Nuvo: Neural UV Mapping for Unruly 3D Representations
Pratul Srinivasan, Stephan J. Garbin, Dor Verbin, Jonathan T. Barron, **Ben Mildenhall**
ECCV, 2024

Binary Opacity Grids: Capturing Fine Geometric Detail for Mesh-Based View Synthesis
Christian Reiser, Stephan J. Garbin, Pratul Srinivasan, Dor Verbin, Richard Szeliski, **Ben Mildenhall**, Jonathan T. Barron, Peter Hedman*, Andreas Geiger*
SIGGRAPH, 2024

ReconFusion: 3D Reconstruction with Diffusion Priors
Rundi Wu*, **Ben Mildenhall***, Philipp Henzler, Keunhong Park, Ruiqi Gao, Daniel Watson, Pratul Srinivasan, Dor Verbin, Jonathan T. Barron, Ben Poole, Aleksander Holynski*
CVPR, 2024

Eclipse: Disambiguating Illumination and Materials using Unintended Shadows
Dor Verbin, **Ben Mildenhall**, Peter Hedman, Jonathan T. Barron, Todd Zickler, Pratul Srinivasan
CVPR, 2024 (oral)

Generative Powers of Ten
Xiaojuan Wang, Janne Kontkanen, Brian Curless, Steve Seitz, Ira Kemelmacher, **Ben Mildenhall**, Pratul Srinivasan, Dor Verbin, Aleksander Holynski
CVPR, 2024 (highlight)

CamP: Camera Preconditioning for Neural Radiance Fields
Keunhong Park, Philipp Henzler, **Ben Mildenhall**, Jonathan T. Barron, Ricardo Martin-Brualla
SIGGRAPH Asia, 2023

Zip-NeRF: Anti-Aliased Grid-Based Neural Radiance Fields
Jonathan T. Barron, **Ben Mildenhall**, Dor Verbin, Pratul Srinivasan, Peter Hedman
ICCV, 2023 (Best Paper Finalist)

DreamBooth3D: Subject-Driven Text-to-3D Generation
Amit Raj, Srinivas Kaza, Ben Poole, Michael Niemeyer, Nataniel Ruiz, **Ben Mildenhall**, Shiran Zada, Kfir Aberman, Michael Rubinstein, Jonathan T. Barron, Yuanzhen Li, Varun Jampani
ICCV, 2023

BakedSDF: Meshing Neural SDFs for Real-Time View Synthesis
Lior Yariv*, Peter Hedman*, Christian Reiser, Dor Verbin, Pratul Srinivasan, Richard Szeliski, Jonathan T. Barron, **Ben Mildenhall**
SIGGRAPH, 2023

MERF: Memory-Efficient Radiance Fields for Real-time View Synthesis in Unbounded Scenes
Christian Reiser, Richard Szeliski, Dor Verbin, Pratul Srinivasan, **Ben Mildenhall**, Andreas Geiger, Jonathan T. Barron, Peter Hedman
SIGGRAPH, 2023

AligNeRF: High-Fidelity Neural Radiance Fields via Alignment-Aware Training
Yifan Jiang, Peter Hedman, **Ben Mildenhall**, Dejia Xu, Jonathan T. Barron, Zhangyang Wang,

Tianfan Xue
CVPR, 2023

DreamFusion: Text-to-3D using 2D Diffusion
Ben Poole, Ajay Jain, Jonathan T. Barron, **Ben Mildenhall**
ICLR, 2023 (Outstanding Paper Award)

Fast and High-quality Image Denoising via Malleable Convolutions
Yifan Jiang, Bartlomiej Wronski, **Ben Mildenhall**, Jonathan T. Barron, Zhangyang Wang, Tianfan Xue
ECCV, 2022

NeRF in the Dark: High Dynamic Range View Synthesis from Noisy Raw Images
Ben Mildenhall, Peter Hedman, Ricardo Martin-Brualla, Pratul Srinivasan, Jonathan Barron
CVPR, 2022 (oral)

Mip-NeRF 360: Unbounded Anti-Aliased Neural Radiance Fields
Jonathan T. Barron, **Ben Mildenhall**, Dor Verbin, Pratul Srinivasan, Peter Hedman
CVPR, 2022 (oral)

Ref-NeRF: Structured View-Dependent Appearance for Neural Radiance Fields
Dor Verbin, Peter Hedman, **Ben Mildenhall**, Todd Zickler, Jonathan T. Barron, Pratul Srinivasan
CVPR, 2022 (Best Student Paper Honorable Mention)

Block-NeRF: Scalable Large Scene Neural View Synthesis
Matthew Tancik, Vincent Casser, Xinchen Yan, Sabeek Pradhan, **Ben Mildenhall**, Pratul Srinivasan, Jonathan T. Barron, Henrik Kretzschmar
CVPR, 2022 (oral)

RegNeRF: Regularizing Neural Radiance Fields for View Synthesis from Sparse Inputs
Michael Niemeyer, Jonathan T. Barron, **Ben Mildenhall**, Mehdi S. M. Sajjadi, Andreas Geiger, Noha Radwan
CVPR, 2022 (oral)

Zero-Shot Text-Guided Object Generation with Dream Fields
Ajay Jain, **Ben Mildenhall**, Jonathan T. Barron, Pieter Abbeel, Ben Poole
CVPR, 2022

Dense Depth Priors for Neural Radiance Fields from Sparse Input Views
Barbara Roessle, Jonathan T. Barron, **Ben Mildenhall**, Pratul Srinivasan, Matthias Niessner
CVPR, 2022

Mip-NeRF: A Multiscale Representation for Anti-Aliasing Neural Radiance Fields
Jonathan T. Barron, **Ben Mildenhall**, Matthew Tancik, Peter Hedman, Ricardo Martin-Brualla, Pratul Srinivasan
ICCV, 2021 (Best Paper Honorable Mention)

Baking Neural Radiance Fields for Real-Time View Synthesis
Peter Hedman, Pratul Srinivasan, **Ben Mildenhall**, Jonathan T. Barron, Paul Debevec
ICCV, 2021 (oral)

Learned Initializations for Optimizing Coordinate-Based Neural Representations
Matthew Tancik*, **Ben Mildenhall***, Terrance Wang, Divi Schmidt, Pratul Srinivasan, Jonathan T. Barron, Ren Ng
CVPR, 2021 (oral)

NeRV: Neural Reflectance and Visibility Fields for Relighting and View Synthesis
Pratul Srinivasan, Boyang Deng, Xiuming Zhang, Matthew Tancik, **Ben Mildenhall**, Jonathan T. Barron
CVPR, 2021

Neural Reflectance Fields for Appearance Acquisition
Sai Bi*, Zexiang Xu*, Pratul Srinivasan, **Ben Mildenhall**, Kalyan Sunkavalli, Miloš Hašan, Yannick Hold-Geoffroy, David Kriegman, Ravi Ramamoorthi
arXiv, 2020

Fourier Features Let Networks Learn High Frequency Functions in Low Dimensional Domains
Matthew Tancik*, Pratul Srinivasan*, **Ben Mildenhall***, Sara Fridovich-Keil, Nithin Raghavan, Utkarsh Singhal, Ravi Ramamoorthi, Jonathan T. Barron, Ren Ng
NeurIPS, 2020 (spotlight)

NeRF: Representing Scenes as Neural Radiance Fields for View Synthesis
Ben Mildenhall*, Pratul Srinivasan*, Matthew Tancik*, Jonathan T. Barron, Ravi Ramamoorthi, Ren Ng
ECCV, 2020 (Best Paper Honorable Mention)

Deep Multi Depth Panoramas for View Synthesis
Kai-En Lin, Zexiang Xu, **Ben Mildenhall**, Pratul P. Srinivasan, Yannick Hold-Geoffroy, Stephen DiVerdi, Qi Sun, Kalyan Sunkavalli, Ravi Ramamoorthi
ECCV, 2020

Lighthouse: Predicting Lighting Volumes for Spatially-Coherent Illumination
Pratul Srinivasan*, **Ben Mildenhall***, Matthew Tancik, Jonathan T. Barron, Richard Tucker, Noah Snavely
CVPR, 2020

StegaStamp: Invisible Hyperlinks in Physical Photographs
Matthew Tancik*, **Ben Mildenhall***, Ren Ng
CVPR, 2020

Local Light Field Fusion: Practical View Synthesis with Prescriptive Sampling Guidelines
Ben Mildenhall*, Pratul Srinivasan*, Rodrigo Ortiz-Cayon, Nima Khademi Kalantari, Ravi Ramamoorthi, Ren Ng, Abhishek Kar
SIGGRAPH, 2019

Unprocessing Images for Learned Raw Denoising
Tim Brooks, **Ben Mildenhall**, Tianfan Xue, Jiawen Chen, Dillon Sharlet, Jonathan T. Barron
CVPR, 2019 (oral)

Burst Denoising with Kernel Prediction Networks
Ben Mildenhall, Jonathan T. Barron, Jiawen Chen, Dillon Sharlet, Ren Ng, Robert Carroll
CVPR, 2018 (spotlight)

DiffuserCam: Lensless Single-exposure 3D Imaging
Nick Antipa, Grace Kuo, Reinhard Heckel, **Ben Mildenhall**, Emrah Bostan, Ren Ng, Laura Waller
Optica, 2017

Approximations for the Distribution of Microflake Normals
Nelson Max, Tom Duff, **Ben Mildenhall**, Yajie Yan
The Visual Computer, 2017

Controlling Procedural Modeling Programs with Stochastically-Ordered Sequential Monte Carlo
Daniel Ritchie, **Ben Mildenhall**, Noah D. Goodman, Pat Hanrahan
SIGGRAPH, 2015