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Vincent Sitzmann

Education and Experience

- since 07/22 **Assistant Professor**, *Massachusetts Institute of Technology*, Cambridge, MA
Leading the Scene Representation Group at the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL).
- 07/23–02/25 **Co-Founder and Chief Scientist**, *Yellow Technologies*, Palo Alto, CA
Yellow is an AI startup focusing on 3D generative modeling for video game asset generation.
- 07/20–07/22 **Postdoctoral Associate**, *Massachusetts Institute of Technology*, Cambridge, MA
Computer Science and Artificial Intelligence Laboratory.
- 07/19–01/20 **Research Intern**, *Google AI*, New York City, NY
- 09/17–04/20 **Doctor of Philosophy**, *Stanford University*, Stanford, CA
Electrical Engineering Department, Stanford Graduate Fellowship.
- 09/15–06/17 **Master of Science**, *Stanford University*, Stanford, CA
Computer Science Department, Fulbright Fellowship.
- 10/11–04/15 **Bachelor of Science**, *Technical University of Munich*, Germany
Electrical Engineering, degree awarded with high distinction (top 3% of class).

Fellowships and Awards

- 2024 **CVPR Best Paper Runner-Up**
- 2023 **Amazon Research Award**
- 2020 **ECCV 2020 Outstanding Reviewer**
- 2019 **NeurIPS Honorable Mention: Outstanding New Directions**
- 2017–2020 **Stanford Graduate Fellowship**
- 2016–2017 **Fellowship of the German Academic Exchange Service**
- 2015–2017 **Full Fulbright Fellowship**
- 2014 **Scholarship of the Lothar and Sigrid Rohde-Foundation**
- 2013–2017 **Scholarship of the German National Academic Foundation**
- 2013–2017 **Scholarship of the Max-Weber Program of Bavaria**

Conference Publications

- C25 **History-Guided Video Diffusion**, K. Song, B. Chen, M. Simchowitz, Y. Du, R. Tedrake, V. Sitzmann, 2025, International Conference on Machine Learning (ICML)

- C24 **Diffusion Forcing: Next-token Prediction Meets Full-Sequence Diffusion**, *B. Chen, D. Monso, Y. Du, M. Simchowitz, R. Tedrake, V. Sitzmann*, 2024, Neural Information Processing Systems (NeurIPS)
- C23 **FlowMap: High-Quality Camera Poses, Intrinsic, and Depth via Gradient Descent**, *C. Smith, D. Charatan, A. Tewari, V. Sitzmann*, 2024, International Conference on 3D Vision (3DV)
- C22 **Score Distillation via Reparametrized DDIM**, *A. Lukoianov, H. Sáez de Ocáriz Borde, K. Greenewald, V. Campagnolo Guizilini, T. Bagautdinov, V. Sitzmann, J. Solomon*, 2024, Neural Information Processing Systems (NeurIPS)
- C21 **pixelSplat: 3D Gaussian Splats from Image Pairs for Scalable Generalizable 3D Reconstruction**, *D. Charatan, S. Li, A. Tewari, A. Tagliasacchi, V. Sitzmann*, 2023, Computer Vision and Pattern Recognition (CVPR, Oral, Best Paper Runner-Up)
- C20 **Intrinsic Image Diffusion for Single-view Material Estimation**, *P. Kocsis, V. Sitzmann, M. Niessner*, 2023, Computer Vision and Pattern Recognition (CVPR)
- C19 **Diffusion with Forward Models: Solving Stochastic Inverse Problems Without Direct Supervision**, *A. Tewari*, T. Yin*, G. Cazenavette, S. Rezchikov, J.B. Tenenbaum, F. Durand, W. T. Freeman, V. Sitzmann*, 2023, Neural Information Processing Systems (NeurIPS, spotlight)
- C18 **FlowCam: Training Generalizable 3D Radiance Fields without Camera Poses via Pixel-Aligned Scene Flow**, *C. Smith, Y. Du, A. Tewari, V. Sitzmann*, 2023, Neural Information Processing Systems (NeurIPS)
- C17 **Learning to Render Novel Views from Wide-Baseline Stereo Pairs**, *Y. Du, C. Smith, A. Tewari, V. Sitzmann*, 2023, IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- C16 **Seeing 3D Objects in a Single Image via Self-Supervised Static-Dynamic Disentanglement**, *P. Sharma, A. Tewari, Y. Du, S. Zakharov, R. Ambrus, A. Gaidon, W. T. Freeman, F. Durand, J.B. Tenenbaum, V. Sitzmann*, 2023, International Conference on Learning Representations (ICLR)
- C15 **Decomposing NeRF for Editing via Feature Field Distillation**, *S. Kobayashi, E. Matsumoto, V. Sitzmann*, 2022, Conference on Neural Information Processing Systems (NeurIPS)
- C14 **Neural Descriptor Fields: SE(3)-Equivariant Object Representations for Manipulation**, *A. Simeonov*, Y. Du*, A. Tagliasacchi, J.B. Tenenbaum, A. Rodriguez, P. Agrawal, V. Sitzmann*, 2022, International Conference on Robotics and Automation (ICRA)
- C13 **3D Neural Scene Representations for Visuomotor Control**, *Y. Li*, S. Li*, V. Sitzmann, P. Agrawal, A. Torralba*, 2021, Conference on Robotic Learning (CoRL)
- C12 **Kubric: A scalable dataset generator**, *K. Greff et al.*, 2012, Conference on Computer Vision and Pattern Recognition (CVPR)
- C11 **Neural Fields in Visual Computing and Beyond**, *Y. Xie, T. Takikawa, S. Saito, O. Litany, S. Yan, N. Khan, F. Tombari, J. Tompkin, V. Sitzmann, S. Sridhar*, 2022, Eurographics, State of the Art Report

- C10 **Light Field Networks: Neural Scene Representation with Single-Evaluation Rendering**, V. Sitzmann*, S. Rezhikov*, J. Tenenbaum, W. T. Freeman, F. Durand, 2021, Conference on Neural Information Processing Systems (NeurIPS, spotlight)
- C9 **Learning Signal-Agnostic Implicit Manifolds**, Y. Du, J. Tenenbaum, V. Sitzmann, 2021, Conference on Neural Information Processing Systems (NeurIPS, poster)
- C8 **Single-Shot Scene Reconstruction**, S. Zakharov, R. A. Ambrus, D. Park, V. Guizilini, W. Kehl, F. Durand, J. B. Tenenbaum, V. Sitzmann, J. Wu, A. Gaidon, 2021, Conference on Robotic Learning (CoRL, Poster)
- C7 **Neural Scene Representations for Visuomotor Control**, Yunzhu Li, Shuang Li, Vincent Sitzmann, Pulkit Agrawal, Antonio Torralba, 2021, Conference on Robotic Learning (CoRL, Oral)
- C6 **Implicit Neural Representations with Periodic Activation Functions**, V. Sitzmann*, J. Martel*, A. Bergman, D. Lindell, G. Wetzstein, 2020, Conference on Neural Information Processing Systems (NeurIPS, oral)
- C5 **MetaSDF: Meta-Learning Signed Distance Functions**, V. Sitzmann*, E. R. Chan*, R. Tucker, N. Snavely, G. Wetzstein, 2020, Conference on Neural Information Processing Systems (NeurIPS, poster)
- C4 **Semantic Implicit Neural Scene Representations with Semi-supervised Training**, A. Kohli*, V. Sitzmann*, G. Wetzstein, 2020, International Conference on 3D Vision (3DV)
- C3 **State of the Art on Neural Rendering**, A. Tewari et al., 2020, Eurographics, State of the Art Report
- C2 **Scene Representation Networks: Continuous 3D-structure-aware Neural Scene Representations**, V. Sitzmann, M. Zollhoefer, G. Wetzstein, 2019, Conference on Neural Information Processing Systems (NeurIPS, oral, Outstanding New Directions Award)
- C1 **Deep Voxels: Learning Persistent 3D Feature Embeddings**, V. Sitzmann, J. Thies, F. Heide, M. Niessner, G. Wetzstein, M. Zollhoefer, 2019, IEEE Conference on Computer Vision and Pattern Recognition (CVPR, oral)

Journal Publications

- J9 **Controlling diverse robots by inferring Jacobian fields with deep networks**, S. Li, A. Zhang, B. Chen, H. Matusik, C. Liu, D. Rus, V. Sitzmann, 2025, *Nature*, 1–7
- J8 **Variational Barycentric Coordinates**, A. Dodik, O. Stein, V. Sitzmann, J. Solomon, 2023, *ACM Transactions on Graphics (SIGGRAPH)*
- J7 **Unsupervised Discovery and Composition of Object Light Fields**, C. Smith, H.X. Yu, S. Zakharov, F. Durand, J.B. Tenenbaum, J. Wu, V. Sitzmann, 2021, *Transactions on Machine Learning Research (TMLR)*
- J6 **Dirty Pixels: Optimizing Image Classification Architectures for Raw Sensor Data**, S. Diamond*, V. Sitzmann*, Frank Julca-Aguilar*, S. Boyd, G. Wetzstein, F. Heide, 2021, *ACM Transactions on Graphics*

- J5 **Hybrid optical-electronic convolutional neural networks with optimized diffractive op-tics for image classification**, *J. Chang, V. Sitzmann, X. Dun, W. Heidrich, G. Wetzstein*, 2018, Scientific Reports
- J4 **End-to-end Optimization of Optics and Image Processing for Achromatic Extended Depth of Field and Super-resolution Imaging**, *V. Sitzmann*, S. Diamond*, Y. Peng*, X. Dun, S. Boyd, W. Heidrich, F. Heide, G. Wetzstein*, 2018, ACM Transactions on Graphics (SIGGRAPH)
- J3 **Saliency in VR: How do people explore virtual environments?**, *V. Sitzmann, A. Serrano, A. Pavel, M. Agrawala, D. Gutierrez, B. Masia, G. Wetzstein*, 2018, IEEE Transactions on Visualization and Computer Graphics (IEEE Virtual Reality)
- J2 **Towards a Machine-learning Approach for Sickness Prediction in Virtual Environments**, *N. Padmanaban, T. Ruban, V. Sitzmann, A. Norcia, G. Wetzstein*, 2018, IEEE Transactions on Visualization and Computer Graphics (IEEE Virtual Reality)
- J1 **Movie Editing and Cognitive Event Segmentation in Narrative Virtual Reality**, *A. Serrano, V. Sitzmann, J. Ruiz-Borau, G. Wetzstein, D. Gutierrez, B. Masia*, 2017, ACM Transactions on Graphics (SIGGRAPH)

Non-Refereed Publications

- NR2 **Deep Medial Fields**, *D. Rebain, K. Li, V. Sitzmann, S. Yazdani, K.M. Yi, A. Tagliasacchi*, 2021, arXiv:2106.03804
- NR1 **Unrolled Optimization with Deep Priors**, *S. Diamond*, V. Sitzmann*, F. Heide, G. Wetzstein*, 2017, arXiv:1705.08041

Patents and Patent Applications

- 2022 **Patent Pending: SYSTEMS AND METHODS FOR RECONSTRUCTING A SCENE IN THREE DIMENSIONS FROM A TWO-DIMENSIONAL IMAGE**
U.S. Pat. App. No. 17/696,490
- 2022 **Patent Pending: UNSUPERVISED DISCOVERY AND COMPOSITION OF OBJECT LIGHT FIELDS**
U.S. Pat. App. No. 63/307,842

Tutorials and Workshops

- 08/23 **Neural Fields for Visual Computing**, *SIGGRAPH 2023*
- 06/23 **Generative Models for Computer Vision**, *CVPR 2023*
- 05/23 **Neural Fields across Fields: Methods and Applications of Implicit Neural Representations**, *ICLR 2023*
- 06/22 **Neural Fields in Computer Vision**, *CVPR 2022*
- 03/22 **Neural Fields in Visual Computing and Beyond**, *Eurographics 2022*
- 11/21 **Tutorial on the Advances in Neural Rendering**, *3DV 2021*
- 08/21 **Learning 3D Representations for Shape and Appearance**, *ICCV 2021*
- 08/20 **Learning 3D Representations for Shape and Appearance**, *ECCV 2020*

- 07/20 **Neural Rendering**, *CVPR 2020*
 05/20 **State of the Art on Neural Rendering**, *Eurographics 2020*

In the Media

- 2025 **MIT Teaches Soft Robots Body Awareness Through AI And Vision**, *Forbes*
<https://www.forbes.com/sites/jenniferkitepowell/2025/07/07/\mit-teaches-soft-robots-body-awareness-through-ai-and-vision/>
 2025 **Vision-based system teaches machines to understand their bodies**, *MIT News*
<https://news.mit.edu/2025/\vision-based-system-teaches-machines-understand-their-bodi>
 2024 **A better way to control shape-shifting soft robots**, *MIT News*
<https://news.mit.edu/2024/\better-way-control-shape-shifting-soft-robots-0510>
 2022 **A New Trick Lets Artificial Intelligence See in 3D**, *WIRED Magazine*
<https://www.wired.com/story/\new-way-ai-see-3d/>
 2022 **An easier way to teach robots new skills**, *MIT News*
<https://news.mit.edu/2022/\teach-pick-robots-new-task-0425>
 2021 **Technique enables real-time rendering of scenes in 3D**, *MIT News*
<https://news.mit.edu/2021/\3-d-image-rendering-1207>
 2021 **On neural scene representations for computer vision and more general AI**, *Generally Intelligent Podcast*
<https://generallyintelligent.com/podcast/\2021-05-19-podcast-episode-11-vincent-sitzm>

Teaching

- 2025 **6.8300: Advances in Computer Vision**, *MIT*
 Completely renewed all course materials to turn into cutting-edge graduate-level course on computer vision. All course materials publicly available under <https://www.scenerepresentations.org/courses/2025/spring/advances-in-cv/>
 2024 **6.8300/6.8301: Advances in Computer Vision**, *MIT*
 2024 **6.S980: Machine Learning for Inverse Graphics**, *MIT*
<https://www.scenerepresentations.org/courses/2023/fall/inverse-graphics/>
 2023 **6.8300/6.869/6.819: Advances in Computer Vision**, *MIT*
 2023 **6.S980: Machine Learning for Inverse Graphics**, *MIT*
 New graduate-level seminar. All course materials publicly available under <https://www.scenerepresentations.org/courses/2022/fall/inverse-graphics/>

Keynotes, Invited Talks & Presentations

- 04/25 **UPenn Institute for Computational Science**, *Learning to Model the World (and Yourself) from Vision*
 03/24 **Stanford Vision and Learning Lab**, *Learning to Model the World (and Yourself) from Vision*
 11/24 **MIT, course Visual Navigation for Autonomous Vehicles**, *Guest lecture Learning to Model the World (and Yourself) from Vision*

10/24 **DeepMind London**, *Learning to Model the 3D World for Vision and Robotics*

10/24 **Oxford Visual Geometry Group (VGG)**, *Learning to Model the 3D World for Vision and Robotics*

10/24 **Bristol Vision Group**, *Learning to Model the 3D World for Vision and Robotics*

07/24 **ELLIS Open Problems in Computer Vision and Generative Modeling**, *Learning to Model the 3D World for Vision and Robotics*

07/24 **Berkeley Artificial Intelligence Research Lab**, *Spatial AI: Teaching AI to Perceive the 3D World*

06/24 **Naval Warfare Center**, *Spatial AI: Teaching AI to Perceive the 3D World*

06/24 **CVPR Workshop on Differentiable Rendering AI**, *Spatial AI: Teaching AI to Perceive the 3D World*

06/24 **CVPR Workshop on Implicit Neural Representations**, *Looking at the Past and the Future of INRs*

05/24 **Conference on Robots and Vision**, *Enabling new Robotic Capabilities with Spatial AI*

04/24 **Harvard Visual Computing Group**, *Spatial AI: Teaching AI to Perceive the 3D World*

04/24 **CMU, course Learning for 3D**, *Guest Lecture on Spatial AI: Teaching AI to Perceive the 3D World*

04/24 **Mitsubishi Electric Research Laboratories**, *Spatial AI: Teaching AI to Perceive the 3D World*

04/24 **Canon**, *Spatial AI: Teaching AI to Perceive the 3D World*

01/24 **Microsoft Research Cambridge**, *Spatial AI: Teaching AI to Perceive the 3D World*

12/23 **CMU Brain Seminar**, *Towards 3D Representation Learning at Scale*

11/23 **MIT EmTech Generative AI Panel**, *Panelist*

10/23 **Princeton Vision Seminar**, *Towards 3D Representation Learning at Scale*

10/23 **MIT EPOCH Biannual Visit to CSAIL**, *Towards 3D Representation Learning at Scale*

10/23 **ICCV 2023 Workshop on Neural Fields for Autonomous Driving**, *Towards 3D Representation Learning at Scale*

10/23 **ICCV 2023 Workshop on Generative Modeling for Computer Vision**, *Towards 3D Representation Learning at Scale*

09/23 **UIUC Vision Seminar**, *Towards 3D Representation Learning at Scale*

07/23 **BIRS Workshop: 3D Generative Models**, *Towards 3D Representation Learning at Scale*

06/23 **CVPR 2023 Workshop on 3D Scene Understanding**, *Towards 3D Representation Learning at Scale*

05/23 **Keynote at Singapore Vision Day**, *Towards 3D Representation Learning at Scale*

04/23 **Simon Fraser University**, *Towards 3D Representation Learning at Scale*

04/23 **Google Research Cambridge**, *Towards 3D Representation Learning at Scale*

- 02/23 **Apple ML & Vision Team**, *Towards 3D Representation Learning at Scale*
- 10/22 **ECCV 2022 Workshop on Frontiers of Monocular 3D Perception**, *Self-Supervised Scene Representation Learning*
- 08/22 **Northwestern University, Seminar Computer Graphics/Photography**, *Self-Supervised Scene Representation Learning*
- 08/22 **Computational Imaging Workshop, Google**, *Self-Supervised Scene Representation Learning*
- 08/22 **Neural Rendering in Computer Vision Rank Symposium**, *Self-Supervised Scene Representation Learning*
- 07/22 **International Computer Vision Summer School, ICVSS**, *Learning to Perceive the 3D World from 2D Images*
- 07/22 **RSS Workshop on Implicit Representations for Robotic Manipulation**, *Self-supervised Scene Representation Learning for Robotics*
- 05/22 **3D Neural Scene Representations Workshop, Google**, *Self-Supervised Scene Representation Learning*
- 05/22 **Friedrich-Alexander-University of Erlangen-Nuremberg**, *Self-supervised Scene Representation Learning*
- 04/22 **GRASP Seminar, University of Pennsylvania**, *Self-supervised Scene Representation Learning for Robotics*
- 04/22 **Max-Planck Institute for Informatics**, *Self-supervised Scene Representation Learning*
- 03/22 **Dagstuhl Seminar for Morphable Models**, *Self-supervised Scene Representation Learning*
- 01/22 **MIT CSAIL Alliances**, *Self-supervised Scene Representation Learning*
- 10/21 **University of California, Berkeley**, *Light Field Networks: Neural Scene Representations with Single-Evaluation Rendering*
- 10/21 **Toyota Research**, *3D Scene Representation Learning*
- 10/21 **Stanford University, course CS348I: Computer Graphics in the Era of AI**, *Guest lecture on Implicit Neural Scene Representations*
- 10/21 **MIT, course 6s898: Deep Learning**, *Guest lecture on Implicit Neural Scene Representations*
- 10/21 **ICCV, Workshop on Differentiable 3D Vision and Graphics**, *Invited Talk on Light Field Networks*
- 07/21 **Toyota Research**, *Light Field Networks: Neural Scene Representations with Single-Evaluation Rendering*
- 01/21 **Stanford Center for Image Systems Engineering (SCIEN) Talk Series**, *Self-Supervised Scene Representation Learning*
- 01/21 **Preferred Networks, Inc.**, *Implicit Neural Scene Representations*
- 08/20 **Stanford University, course CS348I: Computer Graphics in the Era of AI**, *Guest lecture on Implicit Neural Scene Representations*

- 08/20 **University of Toronto, Machine Learning Group**, *Implicit Neural Scene Representations*
- 08/20 **Oxford Visual Geometry Group**, *Implicit Neural Scene Representations*
- 08/20 **Carnegie Mellon Vision and Autonomous Systems Seminar**, *Implicit Neural Scene Representations*
- 07/20 **University of Bath, Visual Computing Group**, *Implicit Neural Scene Representations*
- 07/20 **ICML 2020, Workshop for Object-Oriented Representations**, *Implicit Neural Scene Representations*
- 07/20 **Autonomous Vision Group, Max Planck Institute**, *Implicit Neural Scene Representations*
- 07/20 **Visual Computing Lab, Technical University of Munich**, *Implicit Neural Scene Representations*
- 03/20 **Adobe Research**, *Self-supervised Scene Representation Learning*
- 03/20 **Google DeepMind**, *Self-supervised Scene Representation Learning*
- 01/20 **Apple Research**, *Self-supervised Scene Representation Learning*
- 01/20 **Google AI**, *Self-supervised Scene Representation Learning*
- 01/20 **NVIDIA Research**, *Self-supervised Scene Representation Learning*
- 05/18 **Stanford Wearable Electronics Initiative Seminar**, *Saliency in VR*
- 03/18 **SIGGRAPH 2018**, *Saliency in VR*
- 03/18 **University of Tübingen, Graphics Department**, *Learning Domain-Specific Cameras*
- 03/18 **Max-Planck Institute for Informatics, Graphics Department**, *Learning Domain-Specific Cameras*

Students Supervised

Graduate **Ana Dodik**, *MIT, 2022-*
Hyunwoo Ryu, *MIT, 2023-*
Eric Chen, *MIT, 2023-*
Ishaan Preetam Chandratreya, *MIT, 2023-*
Chonghyuk Song, *MIT, 2023-*
Cameron Smith, *MIT, 2023-*
David Charatan, *MIT, 2022-*
George Cazenavette, *MIT, 2022-*
Boyuan Chen, *MIT, 2022-2025, now at OpenAI.*
Sizhe Li, *MIT, 2022-*
Yilun Du, *MIT, 2020-*
Prafull Sharma, *MIT, 2020-2023*
Eric Ryan Chan, *Stanford University, 2020*
Alexander William Bergman, *Stanford University, 2020*

Undergrad. **Katie Collins**, *MIT*, 2020–2021
Nikhil Murthy, *MIT*, 2020–2021
Amit Pal Kohli, *Stanford University*, 2019–2020, now Ph.D. at UC Berkeley

Theses Committees Served

Mark Hamilton, *MIT*, 2025
Tianwei Yin, *MIT*, 2025
Han Cai, *MIT*, 2024
Prafull Sharma, *MIT*, 2024
Yen-Chen Lin, *MIT*, 2023
Zhoutong Zhang, *MIT*, 2022
Shangzhe Wu, *University of Oxford*, 2022
Wei-Chiu Ma, *MIT*, 2022
George Cazenavette, *CMU*, 2022

My Theses

Doctoral Thesis

title *Self-supervised Scene Representation Learning*
supervisor Prof. Gordon Wetzstein, Stanford University

Bachelor Thesis

title *Plane Detection in SLAM Pointclouds for AR Applications*
supervisor Prof. Klaus Diepold, Technical University of Munich

Academic Service

Area Chair **ICCV 2023, CVPR 2023, LoG 2023, CVPR 2024, NeurIPS 2024, 3DV 2025, CVPR 2025, ICCV 2025, NeurIPS 2025**
Reviewer **ECCV, NeurIPS, ToG, SIGGRAPH, SIGGRAPH Asia, ICLR, ICML, ICCV**