

Matheus Gadelha

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EDUCATION

University of Massachusetts - Amherst	Amherst, MA
<i>Ph.D., Computer Science</i>	2015 — 2021
Federal University of Rio Grande do Norte	Natal, RN, Brazil
<i>B.Sc., M.Sc. Computer Science</i>	2008 — 2014

RESEARCH EXPERIENCE

Senior Research Scientist	2021 — Present
Adobe Research	
Research Intern and Student Researcher	Summer 2020 — Spring 2021
Google Perception	
Research Scientist Intern	Summer 2019 —
Adobe Research	
Applied Scientist Intern	Summer 2018 —
Amazon Web Services	
Research Assistant	Fall 2015 — 2021
CICS, University of Massachusetts - Amherst	
• Deep Learning for 3D Computer Vision.	
Research Assistant	2012 — 2014
DIMAp, Federal University of Rio Grande do Norte	
• Keypoint descriptors; realistic augmented reality	

SOFTWARE

Adobe Illustrator - Mockup

- Applying 2D vector art to photographs in a 3D-aware manner.

Adobe Project Neo - 3D to Image

- Controlling text-to-image generation with 3D scenes.

Adobe Substance 3D Viewer - 3D to Image

- Controlling text-to-image generation with 3D scenes.

Adobe Substance Stager - 3D to Image

- Controlling text-to-image generation with 3D scenes.

PAPERS

1. 3D Space as a Scratchpad for Editable Text-to-Image Generation

Oindrila Saha, Vojtech Krs, Radomir Mech, Subhransu Maji, **Matheus Gadelha***, Kevin Blackburn-Matzen*
ArXiv

2. Residual Primitive Fitting of 3D Shapes with SuperFrusta

Aditya Ganeshan, **Matheus Gadelha**, Thibault Groueix, Zhiqin Chen, Siddhartha Chaudhuri, Vladimir Kim, Wang Yifan, Daniel Ritchie
ArXiv

3. **MeshSplatting: Differentiable Rendering with Opaque Meshes**
Jan Held, Sanghyun Son, Renaud Vandeghen, Daniel Rebain, **Matheus Gadelha**, Yi Zhou, Anthony Cioppa, Ming C. Lin, Marc Van Droogenbroeck, Andrea Tagliasacchi
ArXiv
4. **SIGMA-Gen: Structure and Identity Guided Multi-subject Assembly for Image Generation**
Oindrila Saha, Vojtech Krs, Radomir Mech, Subhransu Maji, Kevin Blackburn-Matzen*, **Matheus Gadelha***
International Conference on Learning Representations (ICLR), 2026
5. **Seeing Through Clutter: Structured 3D Scene Reconstruction via Iterative Object Removal**
Rio Aguina-Kang, Kevin Blackburn-Matzen, Thibault Groueix, Vladimir Kim, **Matheus Gadelha**
International Conference on 3D Vision (3DV), 2026
6. **Frame In-N-Out: Unbounded Controllable Image-to-Video Generation**
Boyang Wang, Xuweiyi Chen, **Matheus Gadelha**, Zezhou Cheng
Advances in Neural Information Processing Systems (NeurIPS), 2025
7. **Reusing Computation in Text-to-Image Diffusion for Efficient Generation of Image Sets**
Dale Decatur, Thibault Groueix, Wang Yifan, Rana Hanocka, Vladimir Kim, **Matheus Gadelha**
International Conference on Computer Vision (ICCV), 2025
8. **DMesh++: An Efficient Differentiable Mesh for Complex Shapes**
Sanghyun Son, **Matheus Gadelha**, Yang Zhou, Matthew Fisher, Zexiang Xu, Ming C. Lin, Yi Zhou
International Conference on Computer Vision (ICCV), 2025
9. **3D-Fixup: Advancing Photo Editing with 3D Priors**
Yen-Chi Cheng, Krishna Kumar Singh, Jae Shin Yoon, Alex Schwing, Liangyan Gui, **Matheus Gadelha**, Paul Guerrero, Nanxuan Zhao
ACM SIGGRAPH, 2025
10. **PreciseCam: Precise Camera Control for Text-to-Image Generation**
Edurne Bernal-Berdun, Ana Serrano, Belen Masia, **Matheus Gadelha**, Yannick Hold-Geoffroy, Xin Sun, Diego Gutierrez
Computer Vision and Pattern Recognition (CVPR), 2025
11. **Motion Modes: What Could Happen Next?**
Karran Pandey, **Matheus Gadelha**, Yannick Hold-Geoffroy, Karan Singh, Niloy J. Mitra, Paul Guerrero
Computer Vision and Pattern Recognition (CVPR), 2025
12. **Instant3dit: Multiview Inpainting for Fast Editing of 3D Objects**
Amir Barda, **Matheus Gadelha**, Vladimir Kim, Noam Aigerman, Amit Haim Bermano, Thibault Groueix
Computer Vision and Pattern Recognition (CVPR), 2025
13. **Text-guided Controllable Mesh Refinement for Interactive 3D Modeling**
Yun-Chun Chen, Selena Ling Ling, Zhiqin Chen, Vova Kim, **Matheus Gadelha**, Alec Jacobson
ACM SIGGRAPH Asia, 2024
14. **DMesh: A Differentiable Representation for General Meshes**
Sanghyun Son, **Matheus Gadelha**, Yang Zhou, Zexiang Xu, Ming C. Lin, Yi Zhou
Advances in Neural Information Processing Systems (NeurIPS), 2024
15. **GEM3D: Generative Medial Abstractions for 3D Shape Synthesis**
Dmitry Petrov, Pradyumn Goyal, Vikas Thamizharasan, Vova Kim, **Matheus Gadelha**, Melinos Averkiou, Siddhartha Chaudhuri, Evangelos Kalogerakis
ACM SIGGRAPH, 2024
16. **Learning Continuous 3D Words for Text-to-Image Generation**
Ta-Ying Cheng, **Matheus Gadelha**, Thibault Groueix, Matthew Fisher, Radomir Mech, Andrew Markham, Niki Trigoni
Computer Vision and Pattern Recognition (CVPR), 2024

17. Generative Rendering: Controllable 4D-Guided Video Generation with 2D Diffusion Models
Shengqu Cai, Duygu Ceylan, **Matheus Gadelha**, Chun-Hao Huang, Tuanfeng Y. Wang, Gordon Wetzstein
Computer Vision and Pattern Recognition (CVPR), 2024
18. Diffusion Handles: Enabling 3D Edits for Diffusion Models by Lifting Activations to 3D
Karran Pandey, Paul Guerrero, **Matheus Gadelha**, Yannick Hold-Geoffroy, Karan Singh, Niloy Mitra
Computer Vision and Pattern Recognition (CVPR), 2024
19. 3DMiner: Discovering Shapes from Large-Scale Unannotated Image Datasets
Ta-Ying Cheng, **Matheus Gadelha**, Soren Pirk, Thibault Groueix, Radomir Mech, Andrew Markham, Niki Trigoni
International Conference on Computer Vision (ICCV), 2023
20. ANISE: Assembly-based Neural Implicit Surface rEconstruction
Dmitry Petrov, **Matheus Gadelha**, Radomir Mech, Evangelos Kalogerakis
Transactions on Visualization and Computer Graphics (TVCG), 2023
21. Recovering Detail in 3D Shapes Using Disparity Maps
Marissa Ramirez de Chanlatte, **Matheus Gadelha**, Thibault Groueix, Radomir Mech
European Conference on Computer Vision (ECCV) Workshop, 2022
22. PrimFit: Learning to Fit Primitives Improves Few Shot Learning on Point Clouds
Gopal Sharma, Bidya Dash, **Matheus Gadelha**, Aruni RoyChowdhury, Marios Loizou, Evangelos Kalogerakis, Liangliang Cao, Erik Learned-Miller, Rui Wang and Subhransu Maji
Symposium on Geometry Processing (SGP), 2022
23. PlanarRecon: Real-time 3D Plane Detection and Reconstruction from Posed Monocular Videos
Yiming Xie, **Matheus Gadelha**, Fengting Yang, Xiaowei Zhou, Huaizu Jiang
Computer Vision and Pattern Recognition (CVPR), 2022
24. Trace Match & Merge: Long-Term Field-Of-View Prediction for AR Applications
Adam Viola*, Sahil Sharma*, Pankaj Bishnoi*, **Matheus Gadelha**, Stefano Petrangeli, Haoliang Wang, Viswanathan Swaminathan.
Best paper candidate.
IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR), 2021
25. Deep Manifold Prior
Matheus Gadelha, Rui Wang, Subhransu Maji. **Best poster honorable mention at NECV.**
arXiv: 2004.04242
26. Label-Efficient Learning on Point Clouds using Approximate Convex Decompositions
Matheus Gadelha*, Aruni RoyChowdhury*, Gopal Sharma, Evangelos Kalogerakis, Liangliang Cao, Erik Learned-Miller, Rui Wang, Subhransu Maji
European Conference on Computer Vision (ECCV), 2020
27. Learning Generative Models of Shape Handles
Matheus Gadelha, Giorgio Gori, Duygu Ceylan, Radomir Mech, Nathan Carr, Tamy Boubekeur, Subhransu Maji, Rui Wang
Computer Vision and Pattern Recognition (CVPR), 2020
28. Inferring 3D Shapes from Image Collections using Adversarial Networks
Matheus Gadelha, Aartika Rai, Subhransu Maji, Rui Wang
International Journal of Computer Vision (IJCV)
29. Shape Reconstruction using Differentiable Projections and Deep Priors
Matheus Gadelha, Rui Wang, Subhransu Maji
International Conference on Computer Vision (ICCV), 2019

30. A Bayesian Perspective on the Deep ImagePrior
Zezhou Cheng, **Matheus Gadelha**, Daniel Sheldon, Subhransu Maji. **Best poster at NCV.**
Computer Vision and Pattern Recognition (CVPR), 2019
31. Multiresolution Tree Networks for 3D Point Cloud Processing
Matheus Gadelha, Rui Wang, Subhransu Maji
European Conference on Computer Vision (ECCV), 2018
32. A Deeper Look at 3D Shape Classifiers
Jong Chyi-Su, **Matheus Gadelha**, Rui Wang, Subhransu Maji
Second Workshop on 3D Reconstruction Meets Semantics (ECCV), 2018
33. Unsupervised 3D Shape Induction from 2D Views of Multiple Objects
Matheus Gadelha, Subhransu Maji, Rui Wang
International Conference on 3D Vision (3DV), 2017
34. 3D Shape Reconstruction from Sketches via Multi-view Convolutional Networks
Zhaoliang Lun, **Matheus Gadelha**, Evangelos Kalogerakis, Subhransu Maji, Rui Wang
International Conference on 3D Vision (3DV - Oral), 2017
35. Shape Generation using Spatially Partitioned Point Clouds
Matheus Gadelha, Subhransu Maji, Rui Wang
British Machine Vision Conference (BMVC), 2017
36. DRINK: Discrete Robust INvariant Keypoints
Matheus Gadelha, Bruno Motta
International Conference on Pattern Recognition (ICPR), 2014

SERVICE

- Area Chair at CVPR 2025, 2026
- Area Chair at WACV 2024, 2025
- Reviewer for ICCV 2019, 2021, 2023, 2025
- Reviewer for CVPR 2018, 2019, 2020, 2021, 2022, 2023, 2024
- Reviewer for LatinX Workshop at CVPR, 2022
- Reviewer for TPAMI 2018, 2021, 2023
- Reviewer for ECCV 2018, 2020, 2022
- Reviewer for Computer and Graphics Journal 2018, 2024
- Reviewer for SIGGRAPH 2023, 2024, 2025
- Reviewer for SIGGRAPH Asia 2018, 2022, 2024
- Reviewer for Pacific Graphics 2019
- Reviewer for Computer Graphics and Applications 2021, 2022
- Reviewer for IJCV 2022, 2024
- Graduate Student Representative at CICS – UMass Amherst, 2019-2020

TEACHING EXPERIENCE

Teaching Assistant

- University of Massachusetts Amherst
- Spring 2018 - Undergraduate Computer Vision
 - Fall 2018 - Graduate Computer Vision
 - Spring 2019 - Introduction to Computer Graphics

Amherst, MA

Temporary Lecturer

- Federal University of Rio Grande do Norte
- Introduction to Algorithms and Numerical Analysis

2014 — 2015

Natal, RN, Brazil