

Matheus Gadelha

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EDUCATION

University of Massachusetts - Amherst

Ph.D., Computer Science

Amherst, MA

2015 — 2021

Federal University of Rio Grande do Norte

B.Sc., M.Sc. Computer Science

Natal, RN, Brazil

2008 — 2014

RESEARCH EXPERIENCE

Senior Research Scientist

Adobe Research

2021 — Present

Research Intern and Student Researcher

Google Perception

Summer 2020 — Spring 2021

Research Scientist Intern

Adobe Research

Summer 2019 —

Applied Scientist Intern

Amazon Web Services

Summer 2018 —

Research Assistant

CICS, University of Massachusetts - Amherst

- Deep Learning for 3D Computer Vision.

Fall 2015 — 2021

Research Assistant

DIMAp, Federal University of Rio Grande do Norte

- Keypoint descriptors; realistic augmented reality

2012 — 2014

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**
Eduar 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 NECV.**
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

Amherst, MA

- Spring 2018 - Undergraduate Computer Vision
- Fall 2018 - Graduate Computer Vision
- Spring 2019 - Introduction to Computer Graphics

Temporary Lecturer

2014 — 2015

Federal University of Rio Grande do Norte

Natal, RN, Brazil

- Introduction to Algorithms and Numerical Analysis