

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. Material Magic Wand: Material-Aware Grouping of 3D Parts in Untextured Meshes

Umangi Jain, Vladimir Kim, **Matheus Gadelha**, Igor Gilitschenski, Zhiqin Chen

Computer Vision and Pattern Recognition (CVPR), 2026

2. 3D Space as a Scratchpad for Editable Text-to-Image Generation

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

Computer Vision and Pattern Recognition (CVPR), 2026

3. Residual Primitive Fitting of 3D Shapes with SuperFrusta

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

Ritchie. **Best paper award candidate.**

Computer Vision and Pattern Recognition (CVPR), 2026

4. **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

Computer Vision and Pattern Recognition (CVPR), 2026

5. **SIGMA-Gen: Structure and Identity Guided Multi-subject Assembly for Image Generation**

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

International Conference on Learning Representations (ICLR), 2026

6. **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

7. **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

8. **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

9. **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

10. **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

11. **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

12. **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

13. **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

14. **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

15. **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

16. **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

17. **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
18. **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
19. **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
20. **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
21. **ANISE: Assembly-based Neural Implicit Surface rEconstruction**
Dmitry Petrov, **Matheus Gadelha**, Radomir Mech, Evangelos Kalogerakis
Transactions on Visualization and Computer Graphics (TVCG), 2023
22. **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
23. **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
24. **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
25. **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
26. **Deep Manifold Prior**
Matheus Gadelha, Rui Wang, Subhransu Maji. **Best poster honorable mention at NECV.**
arXiv: 2004.04242
27. **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
28. **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
29. **Inferring 3D Shapes from Image Collections using Adversarial Networks**
Matheus Gadelha, Aartika Rai, Subhransu Maji, Rui Wang
International Journal of Computer Vision (IJCV)

30. **Shape Reconstruction using Differentiable Projections and Deep Priors**
Matheus Gadelha, Rui Wang, Subhransu Maji
International Conference on Computer Vision (ICCV), 2019
31. **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
32. **Multiresolution Tree Networks for 3D Point Cloud Processing**
Matheus Gadelha, Rui Wang, Subhransu Maji
European Conference on Computer Vision (ECCV), 2018
33. **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
34. **Unsupervised 3D Shape Induction from 2D Views of Multiple Objects**
Matheus Gadelha, Subhransu Maji, Rui Wang
International Conference on 3D Vision (3DV), 2017
35. **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
36. **Shape Generation using Spatially Partitioned Point Clouds**
Matheus Gadelha, Subhransu Maji, Rui Wang
British Machine Vision Conference (BMVC), 2017
37. **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

MENTORING

Research interns mentored/co-mentored at Adobe Research:

- Umangi Jain (University of Toronto)
- Aditya Ganeshan (Brown University)
- Oindrila Saha (UMass Amherst) – now Research Scientist at Adobe Research
- Rio Aguina-Kang (UC San Diego) – now at Drafted
- Dale Decatur (University of Chicago)

- Yen-Chi Cheng (UIUC)
- Sanghyun Son (University of Maryland) – now at Genesis AI
- Karran Pandey (University of Toronto)
- Amir Barda (Tel Aviv University)
- Edurne Bernal-Berdun (Universidad de Zaragoza)
- Shengqu Cai (ETH Zürich) – now PhD student at Stanford University
- Leticia Mattos (MIT)
- Dima Petrov (UMass Amherst) – now at Foundation AGI
- Ta-Ying Cheng (Oxford) – now at Netflix
- Yun-Chun Chen (University of Toronto) – now at Adobe Firefly Foundry
- Marissa Ramirez de Chanlatte (UC Berkeley) – now at Playground Global

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