

Profile

First year Ph.D. student at Aalto University focusing on 3D reconstruction in challenging, real-world environments.

Education	Aalto University	Espoo, Finland
	Ph.D. Student, Department of Computer Science	2024-2028
	Advisors: Prof. Juho Kannala and Prof. Arno Solin.	
	ETH Zurich	Zurich, Switzerland
	M.Sc. Robotics, Systems and Control	2021 - Nov, 2024
	Focus on computer vision and machine learning. Semester project @ ASL and MSc thesis @ CVG.	
	University of Glasgow	Glasgow, Scotland
	BEng (Hons) in Mechanical Engineering with Aeronautics	2017-2021
	Grade: 1st class honours. Cumulative GPA: 20.5/22.	

Experience	Research Assistant	
	Aalto University	Dec 2023 - May 2024
	Project related to 3D Gaussian splatting. Core developer for v0.1.0 of the open-source project <a href="#">gsplat</a> .	
	Research Intern	
	VTT, Technical Research Centre of Finland	April 2023 - Nov 2023
	Hyperspectral radiance fields for material classification in 3D. Contributing to <a href="#">Nerfstudio</a> and <a href="#">BARF-nerfstudio</a> .	
	Research Assistant	
	Computer Vision and Learning Group (VLG), ETH Zurich	Feb 2022 - July 2022
	Human pose estimation from images. Publication: <a href="#">EgoBody</a> . Guided by Ph.D student Siwei Zhang (D-INFK, ETH Zurich).	
	Drone Systems Trainee	
	Nokia	Jun 2020 - Aug 2021
	R&D intern at Nokia working with LTE connected drones at <a href="#">Nokia Drone Networks</a> .	

Publications

DN-Splatter: Depth and Normal Priors for Gaussian Splatting and Meshing,  
**Matias Turkulainen**, Xuqian Ren, Iaroslav Melekhov, Otto Seiskari, Esa Rahtu, Juho Kannala.  
*Winter Conference on Applications of Computer Vision (WACV)*, 2025.

AGS-Mesh: Adaptive Gaussian Splatting and Meshing with Geometric Priors for Indoor Room Reconstruction Using Smartphones,  
Xuqian Ren, **Matias Turkulainen**, Jiepeng Wang, Otto Seiskari, Iaroslav Melekhov, Juho Kannala, Esa Rahtu.  
*International Conference on 3D Vision (3DV)*, 2025.

DeSplat: Decomposed Gaussian Splatting for Distractor-Free Rendering,  
Yihao Wang, Marcus Klasson, **Matias Turkulainen**, Shuzhe Wang, Juho Kannala, Arno Solin.  
*In review. ArXiv preprint ArXiv:2411.19756*, 2025.

Gaussian Splatting on the Move: Blur and Rolling Shutter Compensation for Natural Camera Motion,  
O. Seiskari, J. Ylilammi, V. Kaatrasalo, P. Rantalankila, **M. Turkulainen**, J. Kannala, E. Rahtu, A. Solin.  
*European Conference on Computer Vision (ECCV)*, 2024.

gsplat: An Open-Source Library for Gaussian Splatting,  
V. Ye, R. Li, J. Kerr, **M. Turkulainen**, B. Yi, Z. Pan, O. Seiskari, J. Ye, J. Hu, M. Tancik, A. Kanazawa.  
*In review. ArXiv preprint ArXiv:2409.06765*, 2024.