Nikolaos **Zioulis**

Computer Vision · Computer Graphics · Machine Learning · XR

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"A research engineer working at the intersection of computer graphics, computer (3D) vision and machine learning technologies with a focus on immersive / emerging media and live realistic tele-presence technologies spanning across the XR spectrum"

Positions

Visual Computing Lab, Information Technologies Institute, Centre for Research and Technology Hellas — *Thessaloniki, Greece*

R&D Engineer — *Oct. 2013 - present*

- Research and development using computer vision, computer graphics and machine learning technologies.
- Internal project management in collaborative R&D projects (Hyper360, 5G-Media, ATLANTIS)
- Use case leader for the tele-immersion pilot of the 5G-Media H2020 project
- Technical work-package leader (3D scene reconstruction, diminished reality) in the ATLANTIS H2020 project.
- Lead the design and development of a low-cost volumetric capture system in the Hyper360 H2020 project.
- Lead a small team of research assistants resulting in over 30 publications since 2017.
- Successful and significant participation in the lab's funding acquisition.

Education

Aristotle University of Thessaloniki, School of Electrical and Computer Engineering — *Thessaloniki, Greece*

Diploma in Electrical and Computer Engineering (B.S & M.Sc.) — *June 2012*

Selected Publications

For a complete and up to date list please check my Google Scholar profile.

Zeroth-Order Optimizer Benchmarking for 3D Performance Capture [project page] [code] — *GECCO*

Alexandros Doumanoglou, Petros Drakoulis *, Kyriaki Christaki *, Nikolaos Zioulis *, Vladimiros Sterzentsenko, Antonis Karakottas, Dimitrios Zarpalas, Petros Daras. — *Jul. 2021*

Pano3D: A Holistic Benchmark and a Solid Baseline for 360^o Depth Estimation. [paper] [project page] [code] [data] — *CVPRW*

Georgios Albanis *, Nikolaos Zioulis *, Petros Drakoulis, Vasileios Gkitsas, Vladimiros Sterzentsenko, Federico Alvarez, Dimitrios Zarpalas, Petros Daras. — *Jun. 2021*

PanoDR: Spherical Panorama Diminished Reality for Indoor Scenes. [paper] [project page] [code] — *CVPRW*

Vasileios Gkitsas, Vladimiros Sterzentsenko, Nikolaos Zioulis, Georgios Albanis, Dimitrios Zarpalas. — *Jun. 2021*

Single-shot cuboids: Geodesics-based end-to-end Manhattan aligned layout estimation from spherical panoramas. [paper] [project page] [code] — *Image and Vision Computing*

Nikolaos Zioulis, Federico Alvarez, Dimitrios Zarpalas, Petros Daras. — *Mar. 2021*

DronePose: Photorealistic UAV-Assistant Dataset Synthesis for 3D Pose Estimation via a Smooth Silhouette Loss. [paper] [project page] [code] [data] — *ECCVW*

Georgios Albanis *, Nikolaos Zioulis *, Anastasios Dimou, Dimitrios Zarpalas, Petros Daras — *Aug. 2020*

Deep Soft Procrustes for Markerless Volumetric Sensor Alignment. *IEEE VR*
[paper] [project page] [code]
Vladimiros Sterzentsenko, Alexandros Doumanoglou, Spyridon Thermos, Nikolaos Zioulis, Dimitrios Zarpalas, Petros Daras *Mar. 2020*

Deep Lighting Environment Map Estimation from Spherical Panoramas. *CVPRW*
[paper] [project page] [code]
Vasileios Gkitsas *, Nikolaos Zioulis *, Federico Alvarez, Dimitrios Zarpalas, Petros Daras *Jun. 2020*

Spherical View Synthesis for Self-Supervised 360 Depth Estimation. *3DV*
[paper] [project page] [code] [data]
Nikolaos Zioulis, Antonis Karakottas, Dimitrios Zarpalas, Federico Alvarez, Petros Daras *Sep. 2019*

Self-supervised Deep Depth Denoising. *ICCV*
[paper] [project page] [code]
Vladimiros Sterzentsenko *, Leonidas Saroglou *, Anargyros Chatzitofis *, Spyridon Thermos *, Nikolaos Zioulis *, Alexandros Doumanoglou, Dimitrios Zarpalas, Petros Daras *Oct. 2019*

A Low-cost, Flexible and Portable Volumetric Capturing System. *SITIS*
[paper] [project page] [software]
Vladimiros Sterzentsenko *, Antonis Karakottas *, Alexandros Papachristou *, Nikolaos Zioulis *, Alexandros Doumanoglou, Dimitrios Zarpalas, Petros Daras *Nov. 2018*

Fast Deformable Model-based Human Performance Capture and FVV using Consumer-grade RGB-D Sensors. [paper] [supplementary] [project page] [data] *Pattern Recognition*
Dimitrios S Alexiadis, Nikolaos Zioulis, Dimitrios Zarpalas, Petros Daras *Jul. 2018*

OmniDepth: Dense Depth Estimation for Indoors Spherical Panoramas. *ECCV*
[paper] [project page]
Nikolaos Zioulis *, Antonis Karakottas *, Dimitrios Zarpalas, Petros Daras *Sep. 2018*

Improving Camera Pose Estimation via Temporal EWA Surfel Splatting. [paper] *ISMAR*
Nikolaos Zioulis *, Alexandros Papachristou *, Dimitris Zarpalas, Petros Daras *Oct. 2017*

An integrated platform for live 3D human reconstruction and motion capturing. *IEEE TCSVT*
[paper] [project page] [data]
Dimitrios S Alexiadis, Anargyros Chatzitofis, Nikolaos Zioulis, Olga Zoidi, Georgios Louizis, Dimitrios Zarpalas, Petros Daras *Apr. 2017*

Awards

International

2020 **2nd Prize**, Open Optimization Competition [link] *Online*
2019 **1st Place**, Best Demo Award at the International Conference on Multimedia Modeling [link] *Thessaloniki, GR*

Talks

Tutorial on Volumetric Video *Online*
Eurographics Conference *May. 2021*
- Presented our work on low-cost volumetric video with consumer grade sensors.

The Atlantis Project *Online*
Stereopsia Conference *Dec. 2020*
- Presented the technical challenges of the Atlantis H2020 project.

Exploring serverless service deployment in 5G for next generation media applications *Thessaloniki, GR*

IEEE 5G and IoT Thessaloniki Summit 2018. *Oct. 2018*

- Presented our developments in the 5G-MEDIA H2020 project at the Training School on Emerging Technologies for 5G and Internet of Things.

Academic Services

2021 **Reviewer**, IEEE Virtual Reality Conference (IEEE VR)
2021 **Reviewer**, IEEE Winter Conference of Applications on Computer Vision (IEEE WACV)
2020 **Reviewer**, IEEE Communications Magazine (IEEE COMMAG)
2020 **Reviewer**, IEEE Conference on Computer Vision and Pattern Recognition (IEEE CVPR)
2020 **Reviewer**, IEEE International Conference on Multimedia & Expo (IEEE ICME)
2019 **Reviewer**, IEEE Trans. Circuits, Systems and Video Technology (IEEE TCSVT)

Development

Programming	C++, Python, CUDA, C#
Deep Learning	PyTorch, Caffe
Computer Vision	OpenCV, Eigen, g2o, Microsoft Kinect, Intel RealSense
Computer Graphics	OpenGL, GLSL, GLFW, GLEW, Blender, Unity3D, CG, ImGui
IDE	Visual Studio, Visual Studio Code
Documentation	LaTeX, MkDocs, Microsoft Office
Other Tools	Git, Docker, MeshLab, RabbitMQ, CloudCompare
Languages	English, Greek