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° Depth Estimation.
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.
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.
[paper]   [project page]   [code]
IEEE VR

VLADIMIROS STERZENTSENKO, ALEXANDROS DOUMANOGLOU, SPYRIDON THERMOS, NIKOLAOS ZIOULIS, DIMITRIOS ZARPALAS, PETROS DARAS
Mar. 2020

Deep Lighting Environment Map Estimation from Spherical Panoramas.
[paper]   [project page]   [code]

VASILEIOS GKITSAS *, NIKOLAOS ZIOULIS *, FEDERICO ALVAREZ, DIMITRIOS ZARPALAS, PETROS DARAS

CVPRW

Jun. 2020

Spherical View Synthesis for Self-Supervised 360 Depth Estimation.
[paper]   [project page]   [code]   [data]

NIKOLAOS ZIOULIS, ANTONIS KARAKOTTAS, DIMITRIOS ZARPALAS, FEDERICO ALVAREZ, PETROS DARAS

3DV

Sep. 2019

Self-supervised Deep Depth Denoising.
[paper]   [project page]   [code]

VLADIMIROS STERZENTSENKO *, LEONIDAS SAROGLOU *, ANARGYROS CHATZITOFIS *, SPYRIDON THERMOS *, NIKOLAOS ZIOULIS *, ALEXANDROS DOUMANOGLOU, DIMITRIOS ZARPALAS, PETROS DARAS

ICCV

Oct. 2019

A Low-cost, Flexible and Portable Volumetric Capturing System.
[paper]   [project page]   [software]

VLADIMIROS STERZENTSENKO *, ANTONIS KARAKOTTAS *, ALEXANDROS PAPACHRISTOU *, NIKOLAOS ZIOULIS *, ALEXANDROS DOUMANOGLOU, DIMITRIOS ZARPALAS, PETROS DARAS

SITIS

Nov. 2018

Fast Deformable Model-based Human Performance Capture and FVV using Consumer-grade RGB-D Sensors. [paper]   [supplementary]   [project page]   [data]

DIMITRIOS S ALEXIADIS, NIKOLAOS ZIOULIS, DIMITRIOS ZARPALAS, PETROS DARAS

Pattern Recognition

Jul. 2018

OmniDepth: Dense Depth Estimation for Indoors Spherical Panoramas.
[paper]   [project page]

NIKOLAOS ZIOULIS *, ANTONIS KARAKOTTAS *, DIMITRIOS ZARPALAS, PETROS DARAS

ECCV

Sep. 2018

Improving Camera Pose Estimation via Temporal EWA Surfel Splatting. [paper]

NIKOLAOS ZIOULIS *, ALEXANDROS PAPACHRISTOU *, DIMITRIS ZARPALAS, PETROS DARAS

ISMAR

Oct. 2017

An integrated platform for live 3D human reconstruction and motion capturing.
[paper]   [project page]   [data]

DIMITRIOS S ALEXIADIS, ANARGYROS CHATZITOFIS, NIKOLAOS ZIOULIS, OLGA ZOIDI, GEORGIOS LOUIZIS, DIMITRIOS ZARPALAS, PETROS DARAS

IEEE TCSVT

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
EUROGRAPHICS CONFERENCE

Online

May. 2021

- Presented our work on low-cost volumetric video with consumer grade sensors.

The Atlantis Project
STEREOPSIA CONFERENCE

Online

Dec. 2020

- Presented the technical challenges of the Atlantis H2020 project.

Exploring serverless service deployment in 5G for next generation media applications
IEEE 5G AND IoT THESSALONIKI SUMMIT 2018.

Thessaloniki, GR

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