Giorgos Sfikas

Computer Scientist & Researcher

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- 🎓 https://scholar.google.com/citations?user=X73G9lYAAAAJ

Summary

Dr. Giorgos SFIKAS received his Ph.D. degree in Image Processing and Computer Vision from the University of Strasbourg, France in 2012. In 2014-2022, he has worked in Research, Development and Academic positions in the research centers NCSR "Demokritos" and CERTH, and as an Adjunct Lecturer & Researcher in the University of Ioannina. Today and since 2022, he is an Assistant Professor at the department of Surveying and Geoinformatics Engineering of the University of West Attica. He has extensive research & applied expertise on topics that include foremost 2D & 3D Computer Vision & Photogrammetry, Deep Learning, Bayesian methods and Latent variable models. He has co-organized 4 workshops and has published more than 70 papers on journals and conferences on these fields (>1,800 citations, h-index=20), including on top venues such as CVPR, ICLR, ICML and ECCV. He is a member of the ELLIS network.

Academic Formation

September 2012	🔖 **Ph.D. Computer science / Image Processing & Computer Vision** University of Strasbourg, France Thesis title: *"Non-linear statistical models for shape analysis : application to brain imaging" ("Modèles statistiques non linéaires pour l'analyse de formes : application à l'imagerie cérébrale").* Supervisors: Christian Heinrich, Christophoros Nikou.
June 2007	🔖 **M.Sc. Computer Science** University of Ioannina, Greece Thesis title: *"Statistical methods for content-based image retrieval".* Supervisor: Nikolaos P. Galatsanos.

Teaching Experience

Sep. 2022 – ⋯⋯	🔖 **Assistant Professor at the Department of Surveying and Geoinformatics Engineering, University of West Attica (Athens, Greece)** Courses taught: Computer Vision (Msc course on Artificial Intelligence and Visual Computing), Introduction to Photogrammetry, Photogrammetry III, Analytic Geometry, Computer Graphics, Machine Learning.
Sep. 2020 – Aug. 2022	🔖 **Visiting Lecturer at the Department of Surveying and Geoinformatics Engineering, University of West Attica (Athens, Greece)** Courses taught: Analytic Geometry & Computer Graphics.

Teaching Experience (continued)

Sep. 2016 – Aug. 2020   **Visiting Lecturer at the Department of Computer Science & Engineering, University of Ioannina (Ioannina, Greece)** Courses taught: Digital Image Processing, Computer Vision, Linear Algebra.

Sep. 2011 – Jun. 2012   **Teaching & Laboratory Assistant (Poste "ATER") at the École Nationale Supérieure de Physique de Strasbourg (Strasbourg, France)** Courses assisted: Digital Image Processing, Introduction to C / C++.

Sep. 2004 – Jan. 2006   **Teaching & Laboratory Assistant at the Computer Science & Engineering department (University of Ioannina, Ioannina, Greece)** Courses assisted: Introduction to Probability, Introduction to Programming.

Work Experience (Non-Teaching)

Feb. 2021 – Sep. 2022   **Research Engineer** CIL/IIT laboratory, National Center for Scientific Research "Demokritos" (Athens, Greece).

Jan. 2020 – Sep. 2022   **Research Engineer** Image processing and analysis laboratory, Dept. of Comp. Science and Engineering, University of Ioannina (Ioannina, Greece)

Nov. 2018 – Jun. 2020   **Research Engineer** ITI laboratory, CERTH (Ioannina, Greece)

Apr. 2014 – Oct 2018   **Research Engineer** CIL/IIT laboratory, NCSR "Demokritos" (Athens, Greece)

Mar. 2013 – Dec 2013   **Specialty: Network Administrator – IT Professional** Greek armed forces

Oct. 2008 – Aug. 2012   **Research Engineer** LSIIT/MIV (iCube) Laboratory (Strasbourg, France)

Sep. 2005 – Sep. 2008   **Research Engineer / Laboratory assistant** IPAN Laboratory (Ioannina, Greece)

Jun. 2003 – Sep. 2003   **Software Engineer** Aid engineering co. (Athens, Greece)

Sep. 2000 – Aug. 2001   **Network Administrator** CS support team, University of Ioannina (Ioannina, Greece)

Participation in Research Projects

Jan. 2026 –   **DIGIHAZ (SCOPE-HE / European Commission funded)** Digital Transformation for Natural Hazards. Development of innovative digital tools and research capacity building for disaster risk reduction. Research on the application of Big Data, Machine Learning, and IoT for the mitigation of natural hazards and climate-induced disasters. Spearheaded by the University of Alicante (Spain) in collaboration with the University of West Attica (Greece) and partners from Malaysia and the Philippines.

Participation in Research Projects (continued)

Jun. 2023 – Feb. 2024   **MOTION (Horizon 2020 / European Commission funded)** Image and LiDAR Fusion for Vehicle exterior inspection. Project MOTION aims to facilitate the process of exterior vehicle inspection using a solution including a robust Structure-from-Motion pipeline which combines LiDAR and RGB inputs and a framework for illumination invariant image matching in high dynamic environments.

Feb. 2021 – Feb. 2023   **CULDILE (Research – Create – Innovate / NSRF funded)** "Cultural Dimensions of Deep Learning": Research on Deep Learning & Vision techniques applied to large document imaging databases.

Jan. 2020 – Oct. 2023   **BESSARION (Open Innovation in Culture / NSRF funded)** Byzantine Electronic Scholar on-the-Spot: Automatic inscription analysis, transcription and translation. Research on multiple modern facets of AI including Computer Vision, Probabilistic Modeling, Deep Learning and Natural Language Processing. *Authored the project proposal and directed the project.*

May 2019 – Jun. 2020   **BIMERR (Horizon 2020 / European Commission funded)** Aiming at enhanced Building Information Modelling (BIM) and the Architecture, Engineering & Construction (AEC) field: Research on employing novel Computer Vision and Machine Learning techniques to develop a new toolkit to support renovation stakeholders.

Nov. 2018 – Jun. 2020   **eDREAM (Horizon 2020 / European Commission funded)** Enabling new demand response advanced, market oriented and secure technologies, solutions and business models: Research on computer vision techniques for multimodal (RGB/IR) processing, captured by Unmanned Automated Vehicles in order to estimate Demand Response potential.

Jun. 2017 – Nov. 2017   **COR-skills (Erasmus+ KA2 program / European Commission funded)** Collaborative learning for patient-focused interventions in gait rehabilitation after orthopedic surgery.

Jan. 2016 – Oct. 2018   **READ (Horizon 2020 / European Commission funded)** Recognition and Enrichment of Archival Documents. Research & Development on Computer Vision techniques for Automatic Handwriting Recognition and Keyword Spotting.

Sep. 2015 – Dec. 2015   **SYNAISTHISI (EPAN II / NSRF funded)** Smart networks for collection and processing of data for energy management.

Apr. 2014 – Apr. 2015   **OldDocPro (ARISTEIA / NSRF funded)** Novel techniques for automatic recognition of historical greek manuscripts. Research on computer vision methods for document image processing.

Student Supervision

- 3 PhDs succesfully completed; 3 PhDs in progress
- 13 Diploma thesis supervision completed; 2 Diploma thesis in progress

Giorgos Petsangourakis
- PhD Thesis, "Generative Modeling and Self-Supervised Learning in Computer Vision and Remote Sensing" (in progress) [co-supervision with NCSR"D" Researcher I.Kakogeorgiou].

Gerasimos Palaiopanos
- PhD Thesis, "Machine Learning for Image Processing, 3D Computer Vision and Complex Data Analysis assisted by Generative Learning and Graph Neural Networks-based Techniques" (in progress).

Foteini Papadopoulou
- PhD Thesis, "Uncertainty representation and estimation methods in deep learning with applications to geospatial data" (in progress) [co-supervision with UNIWA Professor A.L.Kesidis].

Konstantina Nikolaidou
- PhD Thesis, "Handwritten Text Generation with Diffusion Models: Beyond Visual Quality" (defended succesfully in December 2025) [co-supervision with NTUA Researcher G.Retsinas and U.Lulea Professor M.Liwicki].

Iasonas Panagos
- PhD Thesis, "Lip-reading using probabilistic inference and deep learning" (defended succesfully in December 2025) [co-supervision with UOI Professor C.Nikou].

Panagiotis Dimitrakopoulos
- PhD Thesis, "Combining Bayesian and Deep Learning Methods in Computer Vision Problems" (defended succesfully in September 2024) [co-supervision with UOI Professor C.Nikou].

- Msc Thesis, "Variational Bayesian Blind Color Deconvolution of Histopathological Images" (2021).

Eirinaios Kyritsis
- Diploma Thesis, "A self-guided autonomous vehicle with a Convolutional Neural Network running on a Raspberry Pi" (2021).

Alexandros Kalpazidis
- Diploma Thesis, "Deep Image Denoising" (2021).

Angelos Katsaliros
- Diploma Thesis, "Road crack segmentation and detection with quaternion neural networks" (2020).

Leonidas Zafeiriou
- Diploma Thesis, "Keyword Spotting using Quaternionic representations" (2020).

Victor Megir
- Diploma Thesis, "Using Gaussian Mixture Models with Deep Neural Network features for Image Segmentation" (2020).

Student Supervision (continued)

Christina Kourou	◼	Diploma Thesis, "Image Retrieval for Byzantine Art using Deep Features and Mixture Models" (2020).
Ioannis Georvasilis	◼	Diploma Thesis, "Inpainting text instances with Generative Adversarial Networks" (2020).
Panagiotis Kouzouglidis	◼	Diploma Thesis, "Automatic Video Colorization using 3D conditional Generative Adversarial Networks" (2019).
Panagiotis Dimitrakopoulos	◼	Diploma Thesis, "Cell Classification and Nuclei Detection Using Deep Convolutional Neural Networks" (2019).
Giorgos Koukouzas	◼	Diploma Thesis, "Image Segmentation in the context of Autonomous Driving using Mask R-Convolutional Neural Network" (2019).
Alexandros Giohalas	◼	Diploma Thesis, "Keyword Spotting using Variational Autoencoders and PHOC networks" (2019).
Giorgos Tsigkas	◼	Diploma Thesis, "Automatic detection of prehistoric rock paintings using computer vision methods" (2019).

Research

Research interests: Machine Learning, Computer Vision, Photogrammetry, Cultural Heritage Applications
73 peer-reviewed publications (11 journal + 60 conference + 2 book chapters)
h-index: 20 • $\geq$ **1820 citations** (`Google scholar` info, as of November 2025)
Full publication list: `https://www.cse.uoi.gr/~sfikas/publications.html`

Selected publications

1 **G. Sfikas** and G. Retsinas, "Unlocking the matrix form of the Quaternion Fourier Transform and Quaternion Convolution: Properties, connections, and application to Lipschitz constant bounding," *Transactions on Machine Learning Research (TMLR)*, 2025.

2 P. Dimitrakopoulos, **G. Sfikas**, and C. Nikou, "Implicit Neural Representation Inference for low-dimensional Bayesian Deep Learning," in *International Conference on Learning Representations (ICLR)*, 2024.

3 K. Nikolaidou, G. Retsinas, **G. Sfikas**, and M. Liwicki, "DiffusionPen: Towards controlling the style of handwritten text generation," in *European Conference on Computer Vision (ECCV)*, 2024.

4 P. Dimitrakopoulos, **G. Sfikas**, and C. Nikou, "Variational Feature Pyramid Networks," in *International Conference on Machine Learning (ICML)*, PMLR, 2022, pp. 5142–5152.

5 G. Retsinas, **G. Sfikas**, C. Nikou, and P. Maragos, "From Seq2Seq recognition to handwritten word embeddings.," in *British Machine Vision Conference (BMVC)*, 2021, p. 98.

6 **G. Sfikas**, D. Ioannidis, and D. Tzovaras, "Quaternion Harris for multispectral keypoint detection," in *IEEE International Conference on Image Processing (ICIP)*, IEEE, 2020, pp. 11–15.

7 G. Tsigkas, **G. Sfikas**, A. Pasialis, A. Vlachopoulos, and C. Nikou, "Markerless detection of ancient rock carvings in the wild: Rock art in Vathy, Astypalaia," *Pattern Recognition Letters*, vol. 135, pp. 337–345, 2020.

8 G. Retsinas, G. Louloudis, N. Stamatopoulos, **G. Sfikas**, and B. Gatos, "An alternative deep feature approach to line level keyword spotting," in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019, pp. 12 658–12 666.

9 **G. Sfikas** and C. Nikou, "Bayesian multiview manifold learning applied to hippocampus shape and clinical score data," in *Bayesian and Graphical Models for Biomedical Imaging workshop, held in conjunction with MICCAI 2016*, Springer, 2017, pp. 160–171.

10 **G. Sfikas**, C. Nikou, N. Galatsanos, and C. Heinrich, "Majorization-minimization mixture model determination in image segmentation," in *IEEE/CVF Computer Vision and Pattern Recognition (CVPR)*, IEEE, 2011, pp. 2169–2176.

11 **G. Sfikas**, C. Nikou, and N. Galatsanos, "Edge preserving spatially varying mixtures for image segmentation," in *IEEE/CVF Computer Vision and Pattern Recognition (CVPR)*, IEEE, 2008, pp. 1–7.

12 **G. Sfikas**, C. Nikou, N. Galatsanos, and C. Heinrich, "MR brain tissue classification using an edge-preserving spatially variant Bayesian mixture model," in *Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, Springer, 2008, pp. 43–50.

Awards and Achievements

2019   ▌   Received best student paper award in IEEE BIBE 2019.

2016   ▌   Received best paper award in MICCAI 2016 workshop "Bayesian and Graphical Models in Biomedical Imaging".

2008   ▌   Paper selected for oral presentation in IEEE/CVF CVPR 2008 (top 3% of papers).

Translations

December 2021   ▌   Editor of the translation of H. Anton-C. Rorres, "Elementary Linear Algebra" into Greek. Translation process organized by Gutenberg Editions.

Conference Organization

2024   ▌   Program Chair of the 16th IAPR Workshop on Document Analysis Systems (DAS 2024).

      ▌   Publication Chair of the 18th IAPR International Conference on Document Analysis Systems (ICDAR 2024).

      ▌   Chair of the 2nd Workshop on 3D Computer Vision and Photogrammetry (3DCVP 2023). In conjunction with ICIP 2024.

2023   ▌   Chair of the 1st Workshop on 3D Computer Vision and Photogrammetry (3DCVP 2023). In conjunction with ICIP 2023.

2021   ▌   Chair of the Workshop on Pattern Recognition and Automation in Construction & the Built Environment (PRAConBE). Held in conjunction with ICPR 2020.

Professional Memberships

▌   Member of the European research excellence network (ELLIS).

▌   Member of the Institute of Electrical and Electronics Engineers (IEEE).

▌   Member of the Hellenic Artificial Intelligence Society (EETN).

▌   Member of the Computer Vision Foundation (CVF).

▌   Member of the British Machine Vision Association (BMVA).

Miscellaneous Experience

Reviewer duty

🔖 Has served as reviewer for: IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), IEEE Transactions on Image Processing (TIP), AAAI Conference on Artificial Intelligence (AAAI), European Conference on Computer Vision (ECCV), British Machine Vision Conference (BMVC), IEEE/CVF Computer Vision and Pattern Recognition (CVPR), IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), ISPRS Journal of Photogrammetry and Remote Sensing, IAPR International Workshop on Document Analysis Systems (DAS), IEEE Transactions on Fuzzy Systems, Computer Vision and Image Understanding, Pattern Recognition, Pattern Recognition Letters, EURASIP Journal on Advances in Signal Processing, Artificial Intelligence Review, Medical Image Computing and Computer Assisted Intervention (MICCAI), International Conference on Image Processing (ICIP), International Conference on Pattern Recognition (ICPR), Asian Conference on Pattern Recognition (ACPR), Hellenic Conference on Artificial Intelligence (SETN), European Signal Processing Conference (EUSIPCO), International Conference on Frontiers in Handwriting Recognition (ICFHR), International Conference on Document Analysis and Recognition (ICDAR), IEEE Image, Video, and Multidimensional Signal Processing Workshop (IVMSP), Digital Signal Processing, MDPI Journal of Imaging, PloS One.

Participation in Seminars & Summer Schools

July 2011   🔖 3rd summer seminar at the Archaeological Site of Akrotiri ("`the Griphos project`"), Santorini, Greece, 2011. Workshop faculty included T.Funkhouser, P.Bogucki, W.Childs, D.Gondicas, J.Smith (Princeton University), L.Van Gool and P.Dutré (KU Leuven), T.Weyrich (UCL), C.Doumas (U.Athens), A.Vlachopoulos (U.Ioannina), A.Papalexandrou (U.Texas at Austin).

July 2009   🔖 International Computer Vision summer school (ICVSS): "Machine learning for Computer Vision". Baia Samuele, Italy, 2009. Included talks held by T.Kanade, M.Black, N.Cristianini, A.Fitzgibbon, D.Forsyth, D.Huttenlocher, P.Kohli, Z.Ghahramani.

Other Skills

Languages	🔖 Greek (native), English (fluent), French (excellent).
Coding	🔖 Python, C/C++, Matlab, Java, Ruby, Rust, Tensorflow, Pytorch, Qt, Visual Studio.
Web Developing	🔖 Django, HTML5/CSS3, Javascript, Joomla.
Operating Systems	🔖 Ubuntu/Debian/SuSE Linux, Raspbian, Windows, Windows server, Solaris, IRIX, FreeBSD, OpenBSD.